Breaking the Cycle: A Qualitative Study of Factors That Mitigate Impostor Phenomenon Among Internal Medicine Residents

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ABSTRACT

Background Impostor phenomenon (IP) describes feelings of inadequacy often experienced by individuals struggling to internalize success despite evidence to the contrary. IP is common in medicine and can be experienced as a cycle following exposure to an achievement-focused task, leading to fear of being found out as an impostor. Prior research describes IP characteristics, yet few studies have identified factors that mitigate IP among medical residents.

Objective To understand factors that moderate IP among internal medicine (IM) residents.

Methods We conducted a qualitative study using one-on-one semistructured interviews with 28 IM residents at a single academic health center from May to June 2020. To ascertain the prevalence of IP, informants completed a 20-item Clance Impostor Phenomenon Scale (CIPS) questionnaire. Using a constructivist thematic approach investigators independently coded transcripts to identify factors mitigating IP.

Results Twenty-eight of 53 (53%) eligible residents participated in the study. Most informants were female (21 of 28, 75%) and in their second postgraduate year of training (12 of 28, 43%). The mean CIPS score was 63. When faced with an achievement-focused task, informants describe feelings of inadequacy, avoidance behaviors, distortion of feedback, and attribution beliefs. Internal factors found to moderate IP include (1) reframing attribution beliefs; (2) accepting feedback; and (3) acknowledging strengths. External factors include (1) mentors, coaches, and role models; (2) formal opportunities to share IP experiences; and (3) growth-oriented learning environments.

Conclusions This qualitative study describes internal and external factors that potentially mitigate impostor feelings, thereby interrupting the cyclical nature of IP among IM residents.

Introduction

Impostor phenomenon (IP) is common among medical professionals, with up to 60% of physicians and medical trainees reporting some degree of perceived fraudulence related to their work.[1] Impostorism is associated with negative outcomes such as lower job satisfaction, less career planning, and lower career striving.[2,3] Health professions trainees, particularly those in medical, pharmacy, nursing, and dental programs, report severe impostor feelings,[1,4] as measured by the Clance Impostor Phenomenon Scale (CIPS).[5,6] IP is consequential and may be associated with low self-esteem,[7] burnout,[8,9] anxiety,[9,10] depression,[8,11] and even suicide.[7,12]

It is unclear how to meaningfully prevent or mitigate IP.[10] A recent scoping review identified only 17 studies (10 in health care settings) describing educational interventions for IP.[13] Short, stand-alone workshops using reflective exercises and cognitive reframing to address negative thinking patterns were the most common interventions. No long-term outcomes were described.[13] A recent randomized clinical trial of a 6-month group coaching intervention among female resident physicians focusing on burnout also demonstrated a statistically significant reduction in IP scores.[14] This coaching program focused on participants' internal thought processes and cognitive reframing. These interventions appropriately center on individual strategies to address maladaptive thoughts, as IP is understood to involve inaccurate self-assessments of one's performance (despite evidence to the contrary) leading to self-doubt.

However, focusing only on internal factors may not represent the full picture of IP among medical trainees. Addressing only internal mitigators of IP may place an undue burden on individuals and may limit the success of interventions to address impostorism. IP was described first as a cycle by Clance in 1985,[15] and later adapted by Sakulku and Alexander[16]

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Editor's Note: The online supplementary data contains the interview guide used in the study and the Clance Impostor Phenomenon Scale.

as an iterative process characterized by psychological distress and maladaptive behaviors driven by fear of being found out as an impostor. The IP cycle begins when confronted with an opportunity to be exposed as a fraud such as being faced with an achievement-related task.[16,17]

Graduate medical education (GME) residents frequently encounter achievement-related tasks and assessments, thus creating an environment conducive to the development of IP and perpetuation of the IP cycle.[18] Little is known about the cyclical nature of impostor feelings among residents or the most important factors (internal and external) that may mitigate the cycle. Understanding the factors that exacerbate and alleviate IP may lead to the design of more effective methods to address impostorism. The purpose of this study is to explore the experience of IP among internal medicine (IM) residents and the factors that moderate their feelings of fraudulence.

KEY POINTS

What Is Known
Limited attention has been given to identifying factors that alleviate imposter phenomenon (IP) among residents.

What Is New
This qualitative study of 28 internal medicine residents investigated factors moderating IP and found 6 factors: reframing attribution beliefs, accepting feedback, acknowledging strengths, mentors, formal opportunities to share experiences, and growth-oriented learning environments.

Bottom Line
Proactively addressing these factors could contribute to creating supportive environments that foster the success of residents.

Methods

Using a phenomenological approach, we sought to understand what factors mitigate IP based on the perceptions of IM residents. We approached the study from a constructivist paradigm, which holds that reality is influenced by social contexts and interactions and evolves over time.[19,20] This approach encourages informants to share personal stories using their own words. It also acknowledges the experiences and perspectives of the researchers and the impact of these on the work.

Study Design, Setting, and Participants

All IM residents (N=53) at the Johns Hopkins Bayview IM Residency Program in Baltimore, Maryland were emailed an invitation to participate in the study between May and June 2020. We conducted one-on-one in-depth semistructured telephone interviews with 28 (53%) IM residents who agreed to participate to learn about their experiences, elicit their feelings, and hear their thoughts about IP.

Individual interviews were performed due to the sensitive nature of this subject and potential negative feelings associated with impostorism. Informants were thanked for their participation with a $10 gift card to a local coffee shop.

Semistructured Interview Guide

The interview guide was developed using an iterative process based on published literature on IP and the authors' own experiences in GME.[1,21-23] Interview questions focused on exploring an informant's lived experience with feelings of fraudulence during residency training and how they cope with impostorism. Three pilot interviews were conducted to ensure clarity of questions, resulting in minor revisions to the final interview guide.

Data Collection

One author (A.C.) conducted all semistructured interviews, which each lasted approximately 35 minutes. Study informants provided verbal consent at the start of the session and were read a statement defining IP as per the interview guide (provided as online supplementary data). Limited demographic information including postgraduate year (PGY), age, gender, and underrepresented in medicine (UIM) status was collected prior to beginning the recorded interview.

Audio recordings of the interviews were transcribed verbatim by a professional transcription service (Ubiqus) and checked for accuracy by A.C. Each transcribed interview was uploaded to NVivo (QSR International) for data management and analysis.

Immediately following the interview, informants were emailed the 20-item CIPS to assess the prevalence and severity of IP among our informants (link provided in online supplementary data).[5,6,15] CIPS scores range between 0 and 100. The higher the total score, the more frequently an individual is affected by impostor feelings.[15,24] A score of 60 or above is consistent with frequent impostor feelings.[5,6,15] We used the scores to allow for comparison with other IP studies, and not to make inferences about individual study informants or comparisons by PGY.

Analysis

We performed thematic analysis using an iterative process. Two authors (S.C.M, R.B.L.) independently identified meaningful segments of text on a subset of transcripts (5 each), resulting in a provisional coding template. A third author (S.M.W.) used the provisional

template to review and code 4 transcripts not previously coded. A final coding template was developed after discussion to reach consensus on codes. It was then applied to all remaining transcripts by S.C.M. and R.B.L. The team met regularly (twice monthly for 4 months) to discuss meaningful concepts from the coded data, identify patterns and relationships, and name final themes and subthemes. The analysis was guided by regular referencing of the adapted IP cycle (FIGURE).[15,16] We considered the IP cycle described by Sakulku and Alexander,[16] which focuses on how impostor feelings may be perpetuated when individuals encounter an achievement- or performance-related task or in response to a success or accomplishment. As noted, residency training involves multiple daily achievement-related tasks, such as presenting a critically ill patient in the intensive care unit, putting in a central line, or leading a team, which may drive feelings of impostorism. We adapted the cycle to simplify its presentation and to place performance-related tasks at the center as drivers of IP to highlight possible ways to mitigate IP. Descriptive statistics were used to summarize informant demographics. Mean CIPS scores were calculated.

Reflexivity

At the time of the interviews, A.C. was a general IM medical education fellow who had completed IM residency training at another program. S.M. was a general IM medical education fellow and recent IM graduate, also from another residency program at the time of data analysis, who did not participate in the interview process. Both authors (R.B.L., S.M.W.) have extensive experience in medical education and research studies, as well as coaching and mentoring trainees in medical education. A.C. and S.C.M. regularly interacted with residents but did not have a role in resident evaluation. All authors acknowledge experiencing IP at various times in their training and careers.

A Johns Hopkins Medicine Institutional Review Board approved the study (IRB00243043).

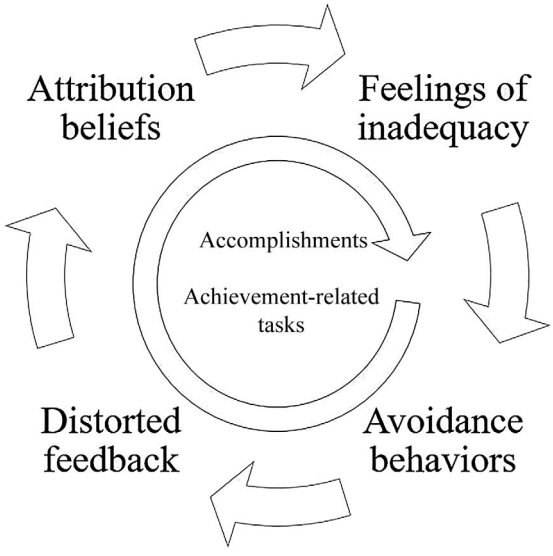

FIGURE
Conceptual Model of the Impostor Phenomenon Cycle

Note: The impostor phenomenon cycle may begin with exposure to an achievement-related task or an accomplishment that brings out feelings of inadequacy. To avoid being found out as an impostor, individuals may engage in avoidance behaviors such as overpreparation or procrastination. Any positive outcome or feedback that results from these behaviors may be distorted through the lens of impostorism, serving to further reinforce the cycle. Adapted from Clance[15] and Sakulku and Alexander.[16]

Results

Twenty-eight of 53 residents (53%) across all PGYs agreed to participate and completed interviews. TABLE 1 shows demographic characteristics and CIPS scores of informants. We present our findings, first based on components of the IP cycle, and then by whether factors mitigating IP were internal or external.

Components of the IP Cycle

Informants provided examples of feelings of inadequacy, avoidance behaviors, distorted feedback, and attribution beliefs in relation to performance-focused tasks. Representative quotes describing the components of the IP cycle and triggers are listed in TABLE 2.

TABLE 1
Characteristics of Internal Medicine Residents Who Participated in the Study[a]

Characteristics	n (%), N=28	CIPS[b] score, mean
Gender		
Male	7 (25)	65
Female	21 (75)	63
Age (years)		
<30	19 (68)	61
≥30	9 (32)	60
Postgraduate year (PGY)		
PGY-1	6 (21)	72
PGY-2	12 (43)	63
PGY-3	10 (36)	56
UIM[c]	3 (11)	59

Abbreviations: CIPS, Clance Impostor Phenomenon Scale; PGY, postgraduate year; UIM, underrepresented in medicine.

[a] Participant information presented here was previously published as part of the initial publication of this work.[25]

[b] CIPS scores above 60 indicate frequent impostor feelings.[5,6]

[c] Participants self-identified as UIM.

TABLE 2
Representative Quotes That Track Components of the Impostor Phenomenon Cycle

IP Cycle & Components	Description	Representative Quotes
IP as a cycle	Informants described experiences that confirm IP as a cycle using language like "recurring," "ebb and flow," and "ever- present."	This intern describes difficulty internalizing accomplishments and dealing with feelings of doubt that arise in his daily work: "Rationally, I can look at my accomplishments, I can listen to what people say about me and I can say yes, that all makes sense … But then there's still those thoughts and feelings in my own head of self-doubt. I think there's things in the moment, [that] I can kind of do to correct it, but then I flip back into old patterns … I slip back into those feelings of inadequacy." (PGY-1, Male, Informant 25)
IP triggers	Informants shared examples of specific achievement- or performance-related tasks that were associated with impostor feelings.	An informant lists some tasks that bring about IP feelings: "You walk in and are expected to be able to put in orders, place a peripheral IV, or perform a LP … that you don't feel [prepared for] … I think there is a lot more expectations and responsibilities as a resident, that you feel like an impostor because you may not have had [those] experiences yet. And yet you're supposed to be competent and perform those duties." (PGY-3, Female, Informant 4)
Feelings of inadequacy	Informants provided examples associated with feelings of inadequacy, including how IP feelings are triggered and perpetuated.	Working in the ICU: "But there's always new challenges to feel impostory about." (PGY-2, Female, Informant 7) Persistent IP feelings: "These feelings are kind of present at all times … you get the feeling that you're kind of faking it and you don't know what's going on; you're a fraud and you'll be figured out." (PGY-2, female, Informant 9)
Avoidance behaviors	Informants shared the need to behave in a particular manner to help quiet their own feelings of doubt and that would minimize being found out as an impostor. These behaviors included hesitance to ask for help and overpreparing.	IP inhibits asking for help: "That's one … example of how not feeling comfortable to ask questions, would then kind of make me want to just say that I know things and maybe not reach out for help when I need it." (PGY-3, Female, Informant 3) IP may lead to overcompensation: "I'll show up at 5:30 in the morning for pre-rounding because by giving myself the extra time to work, I'm compensating for my slowness, and it makes me feel more confident." (PGY-2, Female, Informant 21)
Distorted feedback	When presented with positive feedback, informants were unable to accept it. Instead, they would focus on discrediting or distorting the feedback. This would lead them back into the cycle of feeling inadequate.	Discrediting positive feedback: "There's so much I don't believe. Like I don't believe when people say good things about me." (PGY-3, Female, Informant 18) Difficulty accepting positive feedback: "When people told me like you're doing good. It definitely gives me a boost of confidence. But it might take several times for me to actually, like believe in it." (PGY-2, Male, Informant #26)
Attribution beliefs	Informants shared their perceptions about the causes of their experiences such as being expected to know everything.	Patient care and clinical knowledge: "[IP] is a combination of that feeling of inadequacy and incredible responsibility to your patients. That if you don't figure this out, if you don't help...no one will. But also feeling like you have no idea what's going on." (PGY-2, Male, Informant 15) Attributing success to external factors: "When I have success, I tend to feel like I kind of tricked people into thinking that I was successful, but not actually having the skills to do it. They just maybe liked me as a person and that was why." (PGY-2, Female, Informant 22)

Abbreviations: IP, imposter phenomenon; PGY, postgraduate year.

Identifying these components helps to highlight the factors mitigating IP presented in the themes below.

Factors That Mitigate IP

Informants' descriptions of their experiences dealing with IP suggest that some factors were driven by the resident and some were contextual or initiated by others. We present these as internal or external, each with individual themes in TABLE 3. Informants alluded to a combination of both internal and external factors driving their feelings of impostorism.

Internal Factors: Informants describe internal factors that mitigate feelings of impostorism (TABLE 3). These are presented as the following themes: (1) reframing attribution beliefs with subthemes—gaining perspective and embracing uncertainty; (2) accepting feedback; and (3) acknowledging strengths. The themes reflect processes that may alleviate feelings of IP. Informants were able to shift their internal perceptions about their performance, such as recognizing success as a result of their own actions, as opposed to attributing it to luck. Gaining perspective by considering how much they had learned or accomplished and appreciating the nature of uncertainty in medicine contributed to informants reframing their attribution beliefs to more positive ones. Accepting feedback as genuine and supportive aided informants by helping them see their own growth and gain comfort with "not knowing." Consequently, many informants described how adopting a growth mindset helped them to manage situations that had previously triggered and perpetuated impostor feelings.

This informant explains how acknowledging their strengths as a teacher helped to mitigate impostor feelings.

> *"I was starting to be a little focused more on teaching. I don't know if it's like a reinforcement or a feedback sort of feeling when you realize how much that you've learned and how much you're actually able to teach, I think that is helpful in building confidence.* (PGY-3, Female, Informant 3).

External Factors: Some mitigators of impostorism involved support or contexts that were beyond the residents themselves. These themes include: (1) mentors, coaches, and role models; (2) formal opportunities to share IP experiences; and (3) growth-oriented learning environments. These external factors provided residents with outside support when faced with IP feelings through opportunities to acknowledge that IP is a shared experience among fellow residents and attendings and to challenge thought processes that perpetuate features of the IP cycle. Mentors, coaches, and role models who share their own experiences with IP, model self-doubt, and explicitly state that it is "okay not to know the answer" were mentioned as critical in creating supportive environments and lessening IP. Informants described structured opportunities wherein they could share their IP experiences with other residents as valuable programmatic supports. Informants highlight the importance of a growth-oriented learning environment, especially at times when they are most vulnerable to impostor feelings.

> *"I distinctly remember one of my chiefs saying: 'I know some of you in this room feel like somebody is going to find you out. That you finally got to this program … and you are not good enough. I'm just here to say you are good enough and I have those feelings too.' And that person since then has been very instrumental in my own development."* (PGY-3, Male, Informant 10).

Discussion

Our study identifies key factors that mitigate feelings of impostorism and which may interrupt the IP cycle among IM residents. These factors can be considered as internal and external to the individual experiencing IP. By focusing on the IP cycle, our findings highlight specific situations where IP may be more common or pronounced, demonstrate a connection between internal and external factors as mitigators, and importantly suggest opportunities to interrupt the IP cycle.

Studies of trainees in other specialties confirm the prevalence and severity of IP but do not explicitly describe its cyclical nature.[9,26,27] However, existing research does support an interplay of internal and external factors in IP among medical trainees and physicians. Intrapersonal factors such as having higher impersonal control motivation,[28,29] an orientation wherein an individual focuses on external factors as obstacles to goal attainment (an attribution belief), has been associated with higher CIPS scores among medical students.[28] Similarly, having a low tolerance for uncertainty is associated with more severe feelings of IP in surgeons.[30] External factors, such as learning environments that support the basic psychological needs of trainees and coaching programs may benefit those who experience IP.[26] Our study helps to further describe how internal and external factors contribute to IP among medicine residents and situates these factors in everyday experiences of residency training.

Understanding features of the IP cycle creates additional opportunities to address IP, which is often driven by exposure to achievement-related tasks that

TABLE 3
Themes, Subthemes, and Quotes Describing Internal and External Factors That Mitigate Impostor Phenomenon

Themes	Subthemes	Representative Quotes
Internal Factors		
Reframing attribution beliefs	Gaining perspective	"It reminded me that even though I am not where I would like to be in terms of skill, I will get there eventually. So, I just want to feel comfortable with where I am now. Everything is a process." (PGY-3, Female, Informant 28) "It's useful to recognize that these thought processes are detrimental, and then to try to force yourself...to reframe it in your own head as something else. Say 'I did a great job at that because I'm getting better at this procedure,' [instead of] thinking 'Oh I got lucky,' change that thought and say 'No, I have done a lot of these and I'm getting better at them, and I was able to do this because I'm getting better at it.'" (PGY-1, Male, Informant 25)
	Embracing uncertainty	"My feelings around uncertainty have changed over the years. I've gotten more comfortable either asking for help or if [it's] something no one knows, [then] being more comfortable with a little uncertainty." (PGY-3, Male, Informant 14)
Accepting feedback		"I think I have increasingly learned to accept and appreciate positive feedback. But I think that's also relatively new … in my personal development as a trainee to be comfortable with success and be comfortable with praise." (PGY-2, Female, Informant 6) "I can't say that I'm always confident … It comes and goes. There are days where I get really down, and I forget that very nice feedback … but definitely it's nice to remember sometimes when I'm feeling down or when I feel like I'm very inadequate." (PGY-2, Male, Informant 26)
Acknowledging strengths		"Celebrating small achievements … helped make me feel more comfortable and feel less impostor syndrome." (PGY-3, Female, Informant 1)
External Factors		
Mentors, coaches, and role models		"Mentors … [are] very supportive and tend to help me take another perspective on the situation … and identify thought processes … that usually don't necessarily make the most logical sense or are maybe a little bit self-defeating. I find that really helpful." (PGY-1, Female, Informant 22) "In the moments [when] I felt like I needed to talk through something, my mentor has … done that for me. And just given me the extra push to believe in myself." (PGY-3, Female, Informant 4)
Formal opportunities to share IP experiences		"Talking to other residents about their experiences and … those feelings of inadequacy or the feelings of being an impostor for example, we have a [biweekly] support meeting when everyone comes together, and we all just talk about our frustrations, or our experiences, and it's really helpful to know that everyone is in the same boat, and everyone has some of those feelings of inadequacy, and that you're not alone." (PGY-3, Female, Informant 13) " … if I had been told [by program leaders] that it's okay, and had it been normalized by saying … 'you're going to doubt yourself' or 'you're going to see someone and think they far more deserve to be doing your job than you do, and that's okay' … If I knew that I was normal, I would have felt much less scared and much less self-limited by my own beliefs and thoughts." (PGY-2, Female, Informant 17)
Growth-oriented learning environments		"People can create many different teaching environments … some of our favorite residents and attendings are so open and honest about things that they don't know. And that helps create an environment of learning … you realize that it's okay to not know something or get it wrong, or to even do something wrong. I think that's helpful." (PGY-3, Female, Informant 3) "I think a lot of these [IP] situations happen when we don't feel supported in the environment. We always talk about how we should foster a collaborative environment and give the interns [the] autonomy that they need, but at the same time kind of make them feel supported. [That's one] way [to] combat impostor syndrome and kind of help others through it." (PGY-1, Female, Informant 24)

Abbreviations: PGY, postgraduate year; IP, imposter phenomenon.

appear to emphasize performance over learning (for example, completing a certain number of procedures). One approach to transforming achievement-related tasks into true learning opportunities is to distill them into microskills. By breaking down each task into well-defined, challenging, yet achievable steps with clear expectations and immediate and supportive feedback,[31] residents may approach these tasks with less fear and more of a growth mindset. Microskills may also help to rebalance trainee autonomy and supervisory support in a way that engenders growth orientation and support in the learning environment.[31] Our findings provide insights into when and how to intervene in the cycle by understanding the nature of residents' internal perceptions and which external factors are viewed as most effective.

Findings from our study may also help to better identify residents experiencing IP. For example, understanding how achievement-focused tasks trigger the IP cycle can alert educators who may wish to set clear expectations around performance, share their own IP experiences, and cultivate psychological safety through tolerance for failure and welcoming of questions. Our study also highlights some maladaptive thoughts and behaviors that may signal a resident is experiencing significant IP. IP should be explored when a resident is working excessive hours, as this may signal overpreparation as an avoidance behavior. Additionally, residents who do not ask for help or who do not regularly acknowledge learning gaps may be suffering from IP.

Our findings suggest that we can support residents in gaining perspective about the causes of their performance and recognizing uncertainty as ways to mitigate IP. These internal features may be strengthened by external efforts, such as having mentors who role model dealing with doubt, having structured programmatic opportunities to validate and discuss IP experiences, and experiencing growth-oriented learning environments.[32] Recent studies describing small-group discussions,[33] workshops,[34,35] and online group coaching,[14] have suggested that increased awareness of IP may help to lessen its frequency among medical trainees. Several studies have suggested that environments supporting the psychological safety of trainees, such as those that encourage asking questions, can lessen the fear of failure associated with IP.[9,26,36-38]

There are potential limitations to this study. First, all residents were from a single IM program, which may limit the generalizability of our results. Second, most informants were women, suggesting a possible component of self-selection for participation. Still, this may reflect previous findings of women experiencing more frequent IP feelings compared to men.[39]

Informants completed the CIPS following the interview. Participating in the interview may have influenced IP feelings; this may have affected their CIPS responses and score. Similarly, the timing of the interviews at the end of the academic year may have impacted CIPS scores. Some informants may have been experiencing increased IP at this transition time. Lastly, as with any qualitative study, there is potential for researcher bias.

Conclusions

This study identified internal and external factors that may mitigate the cyclical nature of impostorism among internal medicine residents.

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