Original Work

Prevalence and Intensity of Impostor Phenomenon in PGY1 Pharmacy Residents

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Abstract

Introduction: Healthcare professionals endure rigorous coursework that is often followed by postgraduate training programs. Postgraduate year one (PGY1) training programs are demanding; therefore, providing well-being resources to residents is a necessity. This need is recognized by national organizations with well-being training resources, but few mention details about impostor phenomenon. Impostor phenomenon is frequently found in high-achieving and highly educated individuals, including pharmacy residents.

Objective: The primary objective of this study was to determine the prevalence and intensity of impostor phenomenon in PGY1 residents in programs across the country.

Methods: In September 2023, emails containing a survey and description of the study were sent to 1,602 PGY1 residency program directors (RPDs). The survey, conducted via Qualtrics, inquired about demographics and impostor phenomenon characteristics. It consisted of 27 questions, 20 of which were the Clance Impostor Phenomenon Scale (CIPS).

Results: A total of 704 current PGY1 residents responded to the survey. Over half of the respondents (52.4%) reported having frequent characteristics or experiences of impostor phenomenon. Only 3.4% of residents were found to have few characteristics or experiences of impostor phenomenon. All five types of impostor phenomenon are represented by this sample of residents, with the most common selection "the perfectionist" (40.9%).

Conclusions: The findings of impostor phenomenon in PGY1 residents in this study, in combination with the breakdown of impostor phenomenon types, warrant further research and discussion. Residency programs and national organizations should consider incorporating impostor phenomenon awareness into their well-being programs.

Impostor phenomenon is increasingly being studied in college students and healthcare practitioners.[1] People who experience impostor phenomenon have feelings of self-doubt and a lack of competency. Some describe an internal experience of intellectual doubt despite objective evidence of numerous accomplishments.[2] This phenomenon can lead to chronic mental health concerns, as well as a significant impact on job performance and satisfaction.[3] Impostor phenomenon is more prominent in high-achieving and highly educated individuals.[4] It has been theorized that physicians who experience impostor phenomenon have overvalued their profession and are among very accomplished colleagues.[5] These hypotheses can translate to pharmacy professionals, as current evidence shows that impostor phenomenon is prevalent among pharmacy students. One study of pharmacy residents reported higher prevalence among residents who worked more than 80 hours per week on average and who had received prior mental health treatment.[1] Efforts are being made to combat imposter phenomenon in new pharmacy practitioners.[6] The American Society of Health-System Pharmacists (ASHP), the national accreditation body for pharmacy residencies, has prioritized promoting well-being.[7] As the profession grows, with well-being as a priority, there is also a need to better understand the impact of impostor phenomenon among first-year residents across the nation.

There are five types of impostor phenomenon as defined by the Impostor Syndrome Institute.[8] The types include "the soloist," who prefers to work alone and is unlikely to ask for help for fear of judgement; "the natural genius," who focuses on ease and speed of mastering a subject with the feeling of failure when faced with difficulty; "the perfectionist," who fixates on their mistakes and feels that one minor flaw equates to failure; "the expert," who feels they are expected to know everything and that one gap in knowledge leads to failure; and "the superhero," who takes on many roles and feels that falling short in a role results in failure. Understanding the prevalence and types of impostor phenomenon in PGY1 pharmacy residents will enhance the existing evidence of impostor phenomenon within this highly educated healthcare group. Uncovering the common types of impostor phenomenon among residents may help guide future resources and mitigation strategies. The primary objective of this study was to determine the prevalence and intensity of impostor phenomenon in PGY1 residents in programs across the country. Secondary aims included discovering a correlation between impostor phenomenon in women and other minorities and determining the association between PGY1 residents and the

five types of impostor phenomenon (soloist, perfectionist, natural genius, expert, and superhero). Of note, the phrases "impostor syndrome" and "impostor phenomenon" are commonly used throughout literature and are considered synonymous.

Methods

This survey study examined the demographics and impostor phenomenon characteristics of postgraduate year one (PGY1) pharmacy residents across the United States. The survey consisted of 27 questions, 20 of which included the Clance Impostor Phenomenon Scale (CIPS).[9] The CIPS is an ordinal scale (not at all, rarely, sometimes, often, and very true) that measures the level of impostor phenomenon characteristics (few, moderate, frequent, or often has impostor phenomenon experiences) based on 20 questions. The score assigned by the scale correlates with the intensity of impostor phenomenon characteristics. This scale was used with permission from creator Pauline Rose Clance, PhD, ABPP. A score cutoff of ≥ 62 is identified in the literature to reliably differentiate impostors versus non-impostors. This scoring tool has been validated through literature comparing CIPS with the more recent Perceived Fraudulence Scale (PFS). The CIPS and PFS were found to be significantly correlated ($p \leq 0.1$), validating their use as scoring tools for imposter phenomenon.[10] The Qualtrics survey was anonymous, and participation was voluntary; no incentives were provided. An email containing instructions, the study's purpose, and a link to the survey was sent to all residency program directors (RPDs) found in the ASHP directory. RPD email addresses were obtained from the ASHP directory or the health system's residency information website. The initial email was sent on September 15, 2023, a reminder email followed on October 1, 2023, and both emails included a response deadline of October 15, 2023. RPDs were asked to share the survey with their current PGY1 resident class at their discretion.

The study sample included all 4,099 PGY1 pharmacy residents matched through ASHP Phase I and II for the 2023-2024 cycle in the United States.[11] Demographic information (gender, race/ethnicity, and educational background), residency program information (location and number of PGY1

TABLE 1. Resident Demographic Characteristics and Residency Program Characteristics

Characteristics	*Residents (%)*	*Average Imposter Phenomenon Score**
Number of Residents	704	69.1 (Frequent)
Gender		
Female	538 (76.4)	70.2 (Frequent)
Male	156 (22.2)	64.6 (Frequent)
Nonbinary	8 (1.1)	82.0 (Often)
Prefer Not to Disclose	2 (0.3)	73.0 (Frequent)
Race/Ethnicity**		
White	531 (75.4)	69.0 (Frequent)
Black/African American	41 (5.8)	70.9 (Frequent)
Asian	123 (17.5)	69.9 (Frequent)
American Indian/Alaska Native	4 (0.6)	65.5 (Frequent)
Native Hawaiian/Other Pacific Islander	2 (0.3)	69.5 (Frequent)
Hispanic/Latino/Spanish Origin	42 (6.0)	68.1 (Frequent)
Multiracial	52 (7.4)	71.9 (Frequent)
Prefer Not to Disclose	10 (1.4)	68.0 (Frequent)
Other	11 (1.6)	82.6 (Often)
Education**		
Doctor of Pharmacy (PharmD)	697 (99.0)	69.2 (Frequent)
Doctor of Philosophy (PhD)	2 (0.3)	64.0 (Frequent)
Other Professional Degrees (JD, MD, etc.)	1 (0.1)	56.0 (Few)
Master's Degree	64 (9.1)	68.5 (Frequent)
Bachelor's Degree	442 (62.8)	69.2 (Frequent)
Associate's Degree	11 (1.6)	73.6 (Frequent)
1+ Degree	464 (65.9)	69.1 (Frequent)
Region of Residency Institution		
West	88 (12.5)	69.9 (Frequent)
Midwest	253 (35.9)	69.2 (Frequent)
Southwest	45 (6.4)	67.5 (Frequent)
Southeast	212 (30.1)	68.6 (Frequent)
Northeast	106 (15.1)	69.9 (Frequent)

**Reference Table 2 for details on the level and scoring of Impostor Phenomenon*
***These questions had the possibility of more than one selection choice*

TABLE 2. Resident Clance Imposter Phenomenon Scale and Type of Imposter Phenomenon

Imposter Phenomenon Characteristics	*Residents (%)*
Clance Imposter Phenomenon Scale	
Few Imposter Phenomenon Characteristics/Experiences (score <40)	24 (3.4)
Moderate Imposter Phenomenon Characteristics/Experiences (score 41-60)	161 (22.9)
Frequent Imposter Phenomenon Characteristics/Experiences (score 61-80)	369 (52.4)
Often has intense Imposter Phenomenon Characteristics/Experiences (score >80)	150 (21.3)
Clance Imposter Phenomenon Scale	
The Soloist	91 (12.9)
The Expert	177 (25.1)
The Perfectionist	288 (40.9)
The Natural Genius	60 (8.5)
The Superhero	88 (12.5)

pharmacy residents within the institution), and impostor phenomenon characteristics were collected. The institutions' regions within the United States were determined based on National Geographic's definitions.[12] Postgraduate pharmacists were excluded if their postgraduate pharmacy training occurred through programs outside of the ASHP National Match Program (e.g., fellowships) and if the pharmacists were in their second postgraduate year (PGY2) of pharmacy residency training. This study used descriptive statistics to analyze the data provided through the CIPS.

Residents were asked to select the type of impostor phenomenon they identified with most closely in a multiple-choice question that included descriptions of the characteristics of each type. This study was submitted to the Mayo Clinic Institutional Review Board and was classified as exempt. The survey data was analyzed by two investigators, and the average impostor phenomenon score was calculated for comparison to the endpoints of interest.

Results

At the time of data collection, there were 1,602 PGY1 programs in the ASHP directory, and emails were sent to those RPDs. Excepted were 100 emails (6.2% of total RPD emails) that were not found in the ASHP directory or the institution's pharmacy residency website. The initial emails and the reminder emails resulted in 24 (1.5%) and 45 (2.8%) emails, respectively, that were undeliverable. In total, 704 PGY1 residents completed the survey out of 4,099 PGY1 residents, resulting in a 17.2% response rate (Table 1).

Out of the 704 respondents, the average impostor phenomenon score was 69.1 and the median score was 70, both of which indicate frequent feelings or experiences of impostor phenomenon. Residents who identified as nonbinary represented the minority of the sample at 1.1% but had the highest average impostor phenomenon score (82) of all genders. The majority of responses were from white individuals (75.4%), and all responses had a similar average impostor phenomenon score, indicating frequent experiences of impostor phenomenon. Almost all residents had earned a PharmD (99.0%), and 65.9% of residents had earned more than one degree. Higher response rates were observed in pharmacy residency institutions located in the Midwest (35.9%) and Southeast (30.1%), with all regions having an average score indicating frequent experience of impostor phenomenon.

After completing the survey, the majority of residents (52.4%) had a resulting score of frequent characteristics or experience of impostor phenomenon (Table 2). Conversely, only 3.4% of residents exhibited few characteristics or experiences of impostor phenomenon. All five types of impostor phenomenon were represented by this sample of pharmacy residents, with the most common being "the perfectionist" (40.9%) and the least common being "the natural genius" (8.5%).

Discussion

In a survey of 704 PGY1 pharmacy residents, frequent feelings of impostor phenomenon were reported across all demographics and geographical regions. This prevalence emphasizes the significance of the topic and importance of further research and discussion, along with well-being resources for residents. The majority of residents identified with "the perfectionist" (40.9%) or "the expert" (25.1%) as their "type" of impostor phenomenon. While previous literature has discussed the differences in impostor phenomenon among minority groups, the resulting data from this study showed that impostor phenomenon does not discriminate by race, ethnicity, or gender in PGY1 pharmacy residents.

Pharmacy residency programs are designed to align with ASHP standards for program accreditation, ensuring a rigorous training year for PGY1 residents. Over the past few years, there has been increased education on and awareness of well-being from ASHP and other national pharmacy organizations for residency programs. ASHP provides a well-being resource recognizing its importance during this critical year of training.[13] The findings of this survey suggest that increased discussion and awareness should be focused on impostor phenomenon. It may be hypothesized that it is important to educate first-year licensed pharmacists on resident well-being and impostor phenomenon to facilitate a smooth transition and improve mental health.

Pharmacists are known as medication experts, which can induce stress for residents as they try to fulfill this expectation. As members of the interprofessional team, residents participate in order verification, which is the final step between a prescriber order and the patient receiving the medication. This responsibility may contribute to the prevalence of "the perfectionist" and "the expert" as the most common types of impostor phenomenon, collectively accounting for 66.0% of responding PGY1 residents. A survey study of medical, dental, nursing, and pharmacy students from the Medical University of South Carolina evaluated perfectionism among these medical professional degrees.[14] The study found that pharmacy students were more likely to have socially prescribed perfectionism than holders of any other medical degree. This characteristic is shown to carry on throughout residency and promotes feelings of impostor phenomenon. Conversely, fewer residents identified with "the natural genius" (8.5%) type of impostor phenomenon. Cox and colleagues describe the left-sided thought process that is required for students throughout the doctor of pharmacy (PharmD) coursework.[15] This demonstrates that many pharmacy residents are confident in their technical skills to analyze clinical data, memorize drug information, and evaluate the pharmacokinetics/pharmacodynamics of a patient's regimen, which are core aspects of serving as a pharmacist on an interprofessional team.

A study conducted by Sullivan and colleagues in 2020 found that 57.5% of PGY1 and PGY2 pharmacy residents frequently or often experienced impostor phenomenon.[4] The current study found that 73.7% of residents frequently or often experienced impostor phenomenon. While this study resulted in a higher prevalence, the authors hypothesized that a rise in impostor phenomenon was the result of post-pandemic changes in school curriculum and structure. Between the Sullivan et al. study and this current study, students have been increasingly exposed to virtual learning environments and different methods of knowledge assessment. These variations in curriculum may decrease residents' confidence in clinical and communication skills with patients and the interprofessional team.

While these studies are only a few years apart, they have indicated an increase in the

prevalence of impostor phenomenon. If this trend continues, there may be an urgent need for additional efforts to normalize and address impostor phenomenon to establish confidence in future pharmacists. The purpose of the PGY1 program is to establish the skill set necessary to make independent medication interventions on the interprofessional team to prepare for a PGY2 program or begin a career as a pharmacist.[16] Without certainty and courage, pharmacy residents may struggle to develop these competencies. A review of ASHP resources identified only one document specifically addressing impostor phenomenon in pharmacy residents, highlighting the need for further discussion and support on this issue.[17]

A limitation of this study was a low response rate among residents, at 17.2%. The low response rate is not dissimilar to pharmacy student survey research (12.6% response rate).[18] The demographics of respondents do represent recent graduating class demographics from colleges of pharmacy. Another limitation was the lack of generalizability of results among the small sample of minority populations. The majority of the sample were non-Hispanic (94.0%) white (75.4%) women (76.4%). While some minority groups showed an increase in the prevalence of impostor phenomenon, a greater representation of these populations is needed to confirm the results. Additionally, due to the lack of email addresses for programs, this study population does not include all possible programs, limiting our overall participant pool. A third limitation was system-blocked email addresses from external domains. Due to safety precautions, email addresses external to the institution were blocked in some cases, contributing to a lower participant pool. Additional limitations include framing bias, non-response bias, and baseline understanding of impostor phenomenon.

Conclusions

The findings of this study demonstrate the current prevalence of imposter phenomenon in pharmacy residents. When compared with a previous study, these findings suggest a steep increase in imposter phenomenon prevalence. The majority of residents chose "the perfectionist" (40.9%) or "the expert" (25.1%) as their types of impostor phenomenon. The breakdown of impostor phenomenon types warrants further action to combat the lack of confidence expressed by pharmacy residents. The pharmacy profession and interprofessional members of the healthcare team may benefit from a decline in impostor phenomenon characteristics in PGY1 residents that would enhance patient care.

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