

Is This Really Me? Imposter Phenomenon Among Osteopathic Medical and Masters Students

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Introduction

- Imposter phenomenon (IP) is a psychological pattern in which people doubt their accomplishments and have an internalized fear of being exposed as a fraud.
- IP is associated with anxiety, low level of self-esteem, and lack of confidence, perfectionism, and neuroticism which have potential implications in medical education.
- Medical students are already noted for having higher prevalence and levels of psychological distress compared to their peers not in medicine.¹
 - Manifested as depression, anxiety, and/or suicide.¹
 - Factors that influence this include: academic pressure, financial burden of medical education, lack of emotional support, perception of unattainable expectations.¹
- IP is seen across all levels of medical training, including students, residents, and attending physicians.
- IP can contribute to burnout, which in turn can negatively affect patient care.¹
- Addressing these feelings early on can help institutions intervene and promote student wellbeing in medical education.
- **Objective:** Determine the frequency of imposter phenomenon among our medical (DO) and masters students at our institution.
 - Our Master of Science (MS) program comprises students who plan to pursue a career in healthcare.

Materials and Methods

- Participants completed a voluntary, validated, internally reliable, anonymous 20-item Clance IP instrument.
 - 5 point scale: "Not at all true," "Rarely," "Sometimes," "Often," and "Very True"
 - Score: 0-40 (few imposter characteristics), 41-61 (moderate experiences), 62-80 (frequent experiences), and >81 (intense experiences)
- Total score ranged from 20 to 100
- Higher scores indicated higher levels of IP and more likely to interfere with a person's life
- A score of 62 or greater was interpreted as indicating an individual with imposter phenomenon
- Participants also completed a 10-item demographic and background information survey
- The demographics questionnaire included the variables listed in Tables 1A & 1B
- Surveys were distributed to masters, 1st year, 2nd year, and 3rd year DO students
- Descriptive analysis, one-way ANOVA, and t-test were conducted to determine statistical significance

Results

Participant Demographics

Measure	Items	Count	Percentage
Gender	Male	67	35%
	Female	125	65%
Class Year	Masters	28	14%
	1st Year	65	33%
	2nd Year	72	37%
	3rd Year	30	15%
Age	<25	57	30%
	25-30	107	57%
	31-35	19	10%
	36-40	6	3%
Marital Status	Single	138	72%
	Married	24	13%
	Living with Significant Other	27	14%
	Divorced	0	0%
	Prefer not to state	2	1%
Undergraduate Degree	Physical Sciences	11	6%
	Biological Sciences	117	61%
	Humanities	6	3%
	Social Sciences	16	8%
	Other	22	11%
	Science & Humanities	21	11%

Measure	Items	Count	Percentage
Masters Program	Yes	79	41%
	No	113	59%
Gap Years	0 years	14	7%
	1 year	41	22%
	2 years	51	27%
	3-5 years	61	32%
	6+ years	22	12%
Post-Bacc	Yes	34	18%
	No	158	82%
Family Member Influence	Parents	43	22%
	Grandparents	4	2%
	Siblings	10	5%
	Other	37	19%
	Self	16	8%
Race/Ethnicity	Black/African-American	32	17%
	Hispanic/Latin American	16	8%
	American Indian	1	1%
	Alaskan Native	0	0%
	Asian	58	31%
	Caucasian	84	44%
	Native Hawaiian/Pacific Islander	0	0%
	Other	1	1%

Tables 1A & 1B: Variables & outcomes from the demographics survey.

Gender & Average Scores on Questions



Figure 1: On 15 out of 20 questions, females scored higher than males.

Levels of IP Experiences Among Genders

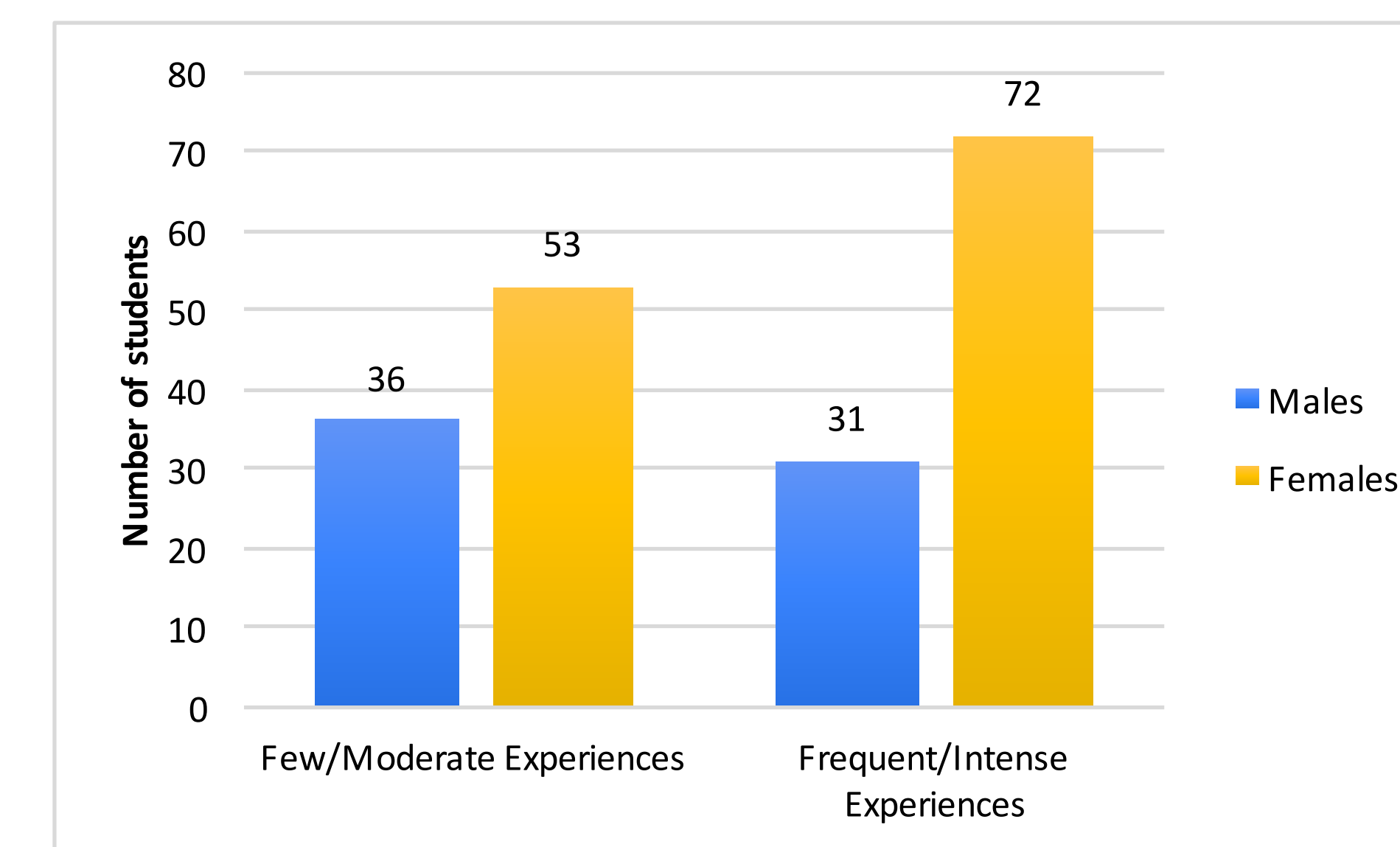


Figure 2: More females than males scored in the range of having frequent/intense imposter experiences, however this was not statistically significant. (p -value = 0.133).

Clance IP Questions

Item	Clance IP Item
Q6	"I'm afraid people important to me may find out that I'm not as capable as they think I am."
Q17	"I often compare my ability to those around me and think they may be more intelligent than I am."
Q18	"I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well."
Q20	"I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement."

Table 2: Statistically most significant questions between males and females.

Questions with Significant Gender Differences

Item	Average Men's Score	Average Women's Score	Score Difference	p-value
Q6	2.433	2.936	0.503	0.004
Q18	3.224	3.608	0.384	0.01
Q20	2.746	3.144	0.398	0.016
Q17	3.403	3.752	0.349	0.041

Table 3: ANOVA results showed questions 6, 17, 18, and 20 had the highest statistical significance.

Conclusions and Future Plans

- Imposter phenomenon has strong implications in education and mental health. Our results raise awareness of such phenomenon in undergraduate medical education.
- IP was found in 46% of male and 58% of female participants. We found no significant difference between male and female overall Clance IP score.
- However, when looking at questions individually, we found four questions where females scored higher than their male counterparts.
- The topics of these four questions should be areas of interests to medical educators seeking to close any disparity between male and female medical education.
- Research has shown that females place a higher importance on other people's opinions about them, in comparison to males.¹
 - Our research indicated similar findings as shown in the higher level of scores among females in Q6.
- A similar study conducted by *University of Kansas School of Medicine* on allopathic 3rd year medical students¹ had comparable results:
 - Both studies found there was a statistical difference between males and females on Q17 and Q18 with females scoring higher than males.
 - Both studies found subjects scored significantly lower on Q5 and Q11 which captures how much they believe their success is rooted in luck. This suggests that both MD and DO medical students believe their accomplishments to get into medical school reflect their abilities, but question whether they are able to handle the challenges of medical training.
- Prior studies have shown that individuals with low levels of confidence are more likely to feel helpless in response to a challenge and interpret performance difficulties as evidence of lack of ability.¹
- Identifying IP among high achieving individuals in demanding fields, such as medicine, could help institutions develop preventative and mitigating interventions to target these feelings.
- Given these findings, our institution can provide counseling and resources.
- Awareness can help lessen the isolation and embarrassment of any feelings, especially if students know others feel similarly.
- **Next steps:** Expand survey to other schools and compare levels of IP among more allopathic vs. osteopathic medical students.

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References

1. Levant B, Villwock JA, Manzardo AM. Impostorism in third-year medical students: an item analysis using the Clance impostor phenomenon scale. *Perspectives on Medical Education*. 2020;9(2):83-91. doi:10.1007/s40037-020-00562-8