

# Imposter phenomenon and depression on a global level: exploring professional identity formation in health professional students

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## Abstract

**Background and relevance:** The imposter phenomenon (IP) is characterized by high-achieving individuals experiencing “chronic feelings of self-doubt, the fear of being discovered as an intellectual fraud, and a perception of being less intelligent or competent than peers.”<sup>1</sup> Limited data exist on how feelings of imposter syndrome may affect aspects of one’s mental health. In the current climate of healthcare worker burnout, it is important to consider factors that may predispose individuals pursuing a career in healthcare to mental and emotional disengagement to assist in amelioration. This study aims to investigate the association between the occurrence of the imposter phenomenon and the frequency of depressed mood among students of the health professions on a global scale. **Design and Methods:** Student members of The Network: Towards Unity for Health responded to the Clance IP Scale and the PHQ-2 questionnaire. The analysis correlates indicators of (1) Region of study; (2) Area of study; (3) Year of study; (4)

Preclinical vs. clinical stage of training; (5) Imposter Scale Score; and (6) Depression Score. We used Wilcoxon Rank Sum tests and linear regression to assess statistical significance. **Results:** More than three-quarters (89%) of respondents had IP scores indicating moderate imposter feelings. A total of 68% of respondents had a PHQ-2 score indicating higher frequency of depressed mood. We found a significantly positive association between IP and depression scores. **Conclusion:** It is important to consider imposter syndrome as a potential risk factor for psychological distress among students in healthcare. Early identification is necessary as the presence of IP was shown to have a significantly positive relationship with the frequency of depressed mood. Familiarizing institutions with this relationship allows for early intervention.

**Keywords:** Imposter Phenomenon, Depression, Health Professional School

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## Introduction

The pathway to a career in medicine necessitates high levels of achievement. Individuals pursuing this path must perform exceptionally well at academic institutions, obtain high scores on standardized tests, and demonstrate sufficient leadership skills through work experience or extracurricular activities. Despite this, students in the health professions who have attained such accomplishments continue to lack an internal sense

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of success. Imposter phenomenon (IP), characterized by high-achieving individuals experiencing, “chronic feelings of self-doubt, the fear of being discovered as an intellectual fraud, and a perception of being less intelligent or competent than peers,” has been widely demonstrated among such students.<sup>1</sup> There is also a significant body of research on student depression, suicidal ideation or completion, and substance abuse in this population.<sup>2,3</sup> These studies have occurred at single

sites, in single countries, or within a specific specialty or cohort. There remains a paucity of research conducted amongst a variety of professionals on a global basis looking at associations between IP and depression. In the current climate of healthcare worker burnout, investigating factors that may predispose individuals pursuing a career in healthcare to mental and emotional disengagement is needed to mitigate maladaptive behaviors.

This study aims to characterize the imposter phenomenon amongst health sciences students in various contexts and to examine the connection between feelings of imposter syndrome and frequency of depressed mood. A secondary aim is to compare the prevalence of IP among students based on geographic location and stage of educational training. This brief communication calls health sciences students and educators worldwide to acknowledge these feelings and work towards a healthy, inclusive environment that fosters professional identity formation based on actualized accomplishments rather than perceived faults.

**Methods**

**Study Design**

We used a cross-sectional observational design survey. The 27-item survey was conducted online and consisted of the Clance Imposter Phenomenon Scale, a self-report questionnaire that measures an individual's level of imposter syndrome.<sup>4,5</sup> To investigate a potential correlation between imposter syndrome and depressed mood among these students, we used the Patient Health Questionnaire (PHQ-2), a validated screening tool for depression.<sup>6</sup> The study population was health sciences students from the Student Network Organization (SNO), part of The Network: Towards Unity for Health (<https://thenetworktufh.org/>).<sup>7</sup> As of 2021, there were 731 student members from six continents. We defined health sciences students as students studying medicine, nursing, pharmacy, midwifery, and other healthcare professions.

**Data Collection:** Data were collected on Qualtrics using the SNO list serve between September 11, 2022, and October 16, 2022. Three reminders were sent. Only registered SNO members could access the survey.

**Data Analysis:** The analysis included correlation indicators of (1) Region of study; (2) Area of study; (3) Year of study; (4) Preclinical vs. clinical stage of training; (5) Imposter Scale Score; and (6)

Depression Score. We used Wilcoxon Rank Sum tests and linear regression to assess statistical significance.

The Clance IP Scale has a predetermined validated scale where  $\leq 40$  = few imposter characteristics; 41-60 = moderate IP experiences; 61-80 = frequently has IP feelings; and  $> 80$  = often has intense IP experiences.<sup>4,5</sup>

The PHQ-2 questionnaire responses are calculated where a score of  $\geq 2$  = major depressive disorder highly likely.<sup>6</sup>

**Ethics:** The University of New Mexico Human Research and Review Committee exempted this study (HRRRC# 22-098).

**Results**

**Demographics**

Data were collected from 53 health professional students (8% response rate) representing five of the six World Health Organization regions. The majority of the respondents were medical students (75%), and most were doing clinical work (74%).

See Table 1 for Demographics.

IP was common among respondents: 40% (21/53) had scores indicating moderate IP experiences, 36% (19/53) had scores indicating frequent imposter feelings, and 13% (7/53) reported intense IP experiences. Only 11% (6/53) of subjects had IP scores representing few imposter characteristics. IP & Depression Scores are significantly and positively associated ( $p < 0.001$ ). South-East Asia ( $p=0.049$ ) and Eastern Mediterranean ( $p=0.001$ ) respondents had significantly greater scores than the Americas. The African region also displayed a potentially different IP v PHQ-2 relationship ( $p=0.051$ ). See Figure 1 for the identified variation in the strength of association between IP and Depression Scores among WHO regions. IP scores among pre-clinical students were significantly higher than in the clinical phase (mean 72.6 v 58.5,  $p=0.006$ ). See Table 2 for overall IP and PHQ2 Results.

**Discussion**

The prevalence of the imposter phenomenon and risk of major depressive disorder (MDD) was high among participants of all participating health professions, in all stages of training. We found IP to be significantly and positively associated with the risk of depression; students with higher levels of

**Table 1: Demographics**

| Characteristic                  | N = 531  |
|---------------------------------|----------|
| <b>Stage of Training</b>        |          |
| Clinical/internships/clerkships | 31 (74%) |
| Pre-clinical                    | 11 (26%) |
| Unknown                         | 11 (21%) |
| <b>Profession</b>               |          |
| Medicine                        | 40 (75%) |
| Other                           | 8 (15%)  |
| Public Health                   | 5 (9.4%) |
| <b>WHO Region</b>               |          |
| Americas                        | 11 (21%) |
| Africa                          | 16 (30%) |
| South-East Asia                 | 9 (17%)  |
| Eastern Mediterranean           | 12 (23%) |
| European                        | 5 (9.4%) |

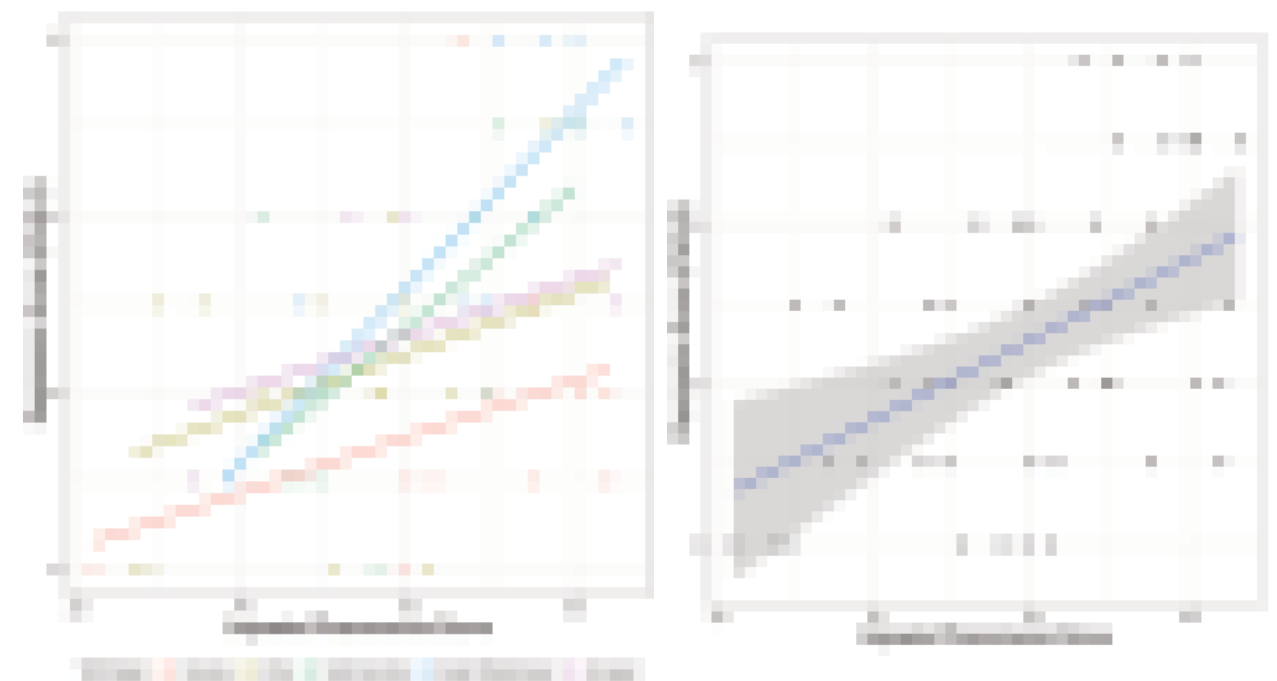
<sup>1</sup> n (%)

**Table 2: Summarized IP and PHQ 2 Results**

| Characteristic                          | N = 53 <sup>1</sup> |
|---|---------------------|
| <b>Imposter Phenomenon Score</b>        |                     |
| Median (IQR)                            | 60 (49,75)          |
| Range                                   | 22, 86              |
| <b>Depression Score (PHQ-2)</b>         |                     |
| Median (IQR)                            | 2 (1, 4)            |
| Range                                   | 0, 6                |
| <b>Major Depressive Disorder Likely</b> | 36 (68%)            |

<sup>1</sup> n (%)

**Figure 1: Relationship between impostor syndrome and depressed mood by region**



imposter syndrome displayed a higher frequency of depressed mood and, thus, a higher risk for MDD.

The findings of this study are consistent with previous research that found similar associations between IP and psychological impairments, such as lack of self-confidence, anxiety, burnout, and depressed mood.<sup>8</sup> An advantage of this study design is its exploration of factors that may influence the prevalence and strength of association between IP and the risk of major depressive disorder. For instance, although the response rate makes generalizability difficult, the comparison between WHO regions and subjects' IP scores indicates that there may be differences in the ways culture and regional health professional schools affect a student's perception of themselves.

The results of this study and others before it can be used to encourage administrators and educators of health science students to identify aspects of the healthcare training environment that may lead to the psychologically isolating feelings of imposter syndrome. An examination of regional cultures is beyond the scope of this brief report. However,

within most health science learning settings, students rely heavily on external evaluations to progress through training. For mental health reasons, it therefore becomes imperative for the learner to establish an internalized self-evaluation that is reflective of their true abilities, rather than perceived inadequacy or self-doubt. This becomes exceedingly important when considering the psychological impact of such false perceptions.<sup>8</sup> Creating a learning environment that acknowledges and normalizes these internal experiences may rescue maladaptive thoughts and behaviors that stem from a perceived inability to meet self- or institution-imposed standards. We must move from a culture of expected excellence and harsh evaluations to one that encourages accurate self-reflection and growth.

#### **Limitations**

The limitations of our study include the low response rate, although it represents global regions. In addition, participants may have answered according to how they felt when they responded to the survey, rather than with their overall view.

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