

# Impostor Phenomenon In Medical Students: A Single Center Experience

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**Abstract.** *Impostor Phenomenon (IP) is a phenomenon in which high achievers doubt their abilities, attribute success to factors beyond their capabilities, and fear being considered fraud. The Impostor Phenomenon is associated with psychological attributes such as perfectionism, feelings of anxiety, depression, and low resilience. This study aims to determine the relationship between level of anxiety and resilience with the occurrence of the Impostor Phenomenon. The research sample was 99 students using the STAI, CD-RISC 25, and CIPS questionnaires showed 40 students (40.4%) with mild State Anxiety, 40 students (40.4%) with severe Trait Anxiety, 86 students (86.9%) with high resilience, and 57 students (57.6%) with high IP. Chi-square and Kendall's Tau-B test analysis proves that there was a significant association between State Anxiety ( $p = 0.005$ ;  $r = 0.303$ ), Trait Anxiety ( $p = 0.000$ ;  $r = 0.582$ ), and resilience ( $p = 0,016$ ;  $r = -0.273$ ) with the occurrence of the IP. The results of multivariate analysis using multiple logistic regression showed that the Trait Anxiety variable was the most dominant in influencing the occurrence of the Impostor Phenomenon ( $p = 0.000$ ; OR = 0.042; 95% CI = 0.011 - 0.152). Conclusion. Anxiety was the dominant variable in the occurrence of the impostor phenomenon*

**Keywords:** Anxiety, Resilience, Doubtiness, Fear, Abuse

**Abstrak.** *Impostor Phenomenon (IP) adalah fenomena dimana individu berprestasi tinggi meragukan kemampuannya, mengatribusikan kesuksesan pada faktor di luar kemampuan dirinya dan merasa takut dianggap sebagai penipu. IP dikaitkan dengan atribut psikologis seperti perfeksionisme, perasaan cemas, depresi, dan resiliensi yang rendah. Penelitian ini bertujuan untuk mengetahui hubungan antara tingkat kecemasan dan resiliensi dengan kejadian IP. Sampel sebanyak 99 mahasiswa menggunakan kuesioner STAI, CD-RISC 25, dan CIPS menunjukkan sebanyak 40 mahasiswa (40,4%) dengan State Anxiety ringan, 40 mahasiswa (40,4%) dengan Trait Anxiety berat, 86 mahasiswa (86,9%) dengan resiliensi tinggi, dan 57 mahasiswa (57,6%) dengan IP tinggi. Uji Chi-square dan Kendall's Tau-B membuktikan adanya asosisasi signifikan antara State Anxiety ( $p = 0,005$ ;  $r = 0.303$ ), Trait Anxiety ( $p = 0,000$ ;  $r = 0.582$ ) dan resiliensi ( $p = 0,016$ ;  $r = -0.273$ ) dengan kejadian IP. Hasil analisis multivariat menggunakan uji regresi logistik berganda didapatkan Trait Anxiety merupakan variabel paling dominan dalam memengaruhi terjadinya IP ( $p = 0,000$ ; OR = 0,042; CI 95% = 0,011 - 0,152).*

**Kata Kunci:** Kecemasan, Resiliensi, keraguan, ketakutan, penyalahgunaan

## 1. Introduction

The Impostor Phenomenon is a phenomenon where high achievers doubt their abilities, attribute success to factors beyond their abilities and feel afraid of being considered a fraud. This happens as individuals associate their success with luck and feel that they are not competent in their fields. Medical personnel is considered to tend to experience the Impostor Phenomenon more often, with varying intensities at each level of education (Ikbaal, 2018). Career transitions, such as career beginnings or career phase shifts, are situations where the Impostor Phenomenon is very likely to be encountered. The change in the stage of pre-clinical to the clinical environment is a challenge for medical students (Levant, 2020). Chen (2020) stated that about 30% of medical students and residents were identified as experiencing Impostor Phenomenon, with a higher prevalence rate in women. The Impostor Phenomenon is associated with psychological attributes such as perfectionism, feelings of anxiety, depression, and low resilience. Villwock (2016) state that the Impostor Phenomenon has a significant percentage of medical students and appears to peak in the fourth year of schooling. Having a feeling of Impostor triggers a negative effect on medical students' health, such as depression, anxiety, and the desire to quit college to suicide. Medical students are considered to have a higher prevalence of psychological distress than their peers, which may be caused by academic factors, lack of emotional support, and unfulfilled expectations (Levant, 2020). Anxiety and depression that are felt then distort a person's self- image so that individuals focus more on, especially mistakes, difficulties, and failures.

Research conducted by (Ikbaal, 2018) on 256 Medical Students Melaka-Manipal Medical College, Malaysia, showed that Impostors had a positive association with anxiety. Potential negative consequences of high-level psychological pressures that occur in medical students, such as decreased physical health, decreased academic performance, and future professional disorders, provide important warnings for identifying students who have the greatest risk for psychological adjustments during their learning period (Henning, 1998). Individuals with high levels of the Impostor Phenomenon show low scores in self-compassion and social relations with peers and get the highest scores in anxiety and loneliness (Camara, 2022). Individuals with Impostor Phenomenon are afraid of responsibilities and expectations for their success; they feel inappropriate for praise and find difficulties in accepting failure, criticism, and input (Qureshi, 2017). Resilience as a form of positive adaptation, the ability to overcome stress and develop in difficult conditions considered as a protective solution to Impostor Phenomenon (Camara, 2022). The ability of the brain's plasticity will adjust activity in responding to situations or various changes to develop the ability to adapt to various new situations. Research conducted by Safaryazdi (2014) with a random sampling of 150 people in the Province of Mazandaran, Iran, obtained a negative association between resilience and the Impostor Phenomenon. Other research conducted by Camara (2022) to 425 medical students of Christus University Center, Fortaleza, Brazil, also gave the same results related to the negative correlation of resilience with the Impostor Phenomenon.

Previous research tends to focus on one level of education in medical students, so the distribution of anxiety and resilience levels to Impostor Phenomenon at various levels of pre- clinical medical students cannot be explained. This attracts the attention of the authors to find out the relationship between the level of anxiety and resilience with the incidence of Impostor Phenomenon at the Faculty of Medicine UPN Veteran Jakarta in 2022.

### 2. Methods

**Participants :** This research used observational analytics with a cross-sectional approach through consecutive sampling techniques to 99 students Faculty of Medicine of UPN Veteran Jakarta year 2022 that meet the inclusion criteria. The inclusion criteria such as students who have a GPA in the even semester of the 2020/2021 academic year, have a minimum 3.50 GPA, or ever won an academic competition. The exclusion criteria are that students did not fill out the questionnaire completely.

**Instruments :** The measurement scale used for anxiety variable is State-Trait Anxiety Inventory (STAI) questionnaire developed by Spielberger (1983), consisting of 40 Aitem Statements divided into 20 Aitem State Anxiety Inventory and 20 items Trait Anxiety Inventory. Respondents will be faced with a Likert scale consisting of four points as an alternative answer for each item. Item asked included: "I already feel enough with my current condition" for the State Anxiety and "I am responding to the disappointment that I experienced too deep, so I was difficult to forget it" for Trait Anxiety. The results were then divided into three categories, namely low anxiety (20-37), moderate anxiety (38-44), and severe anxiety (45-80). The measurement scale used for the resilience variable is the Connor Davidson Resilience Scale (CD-RISC 25) questionnaire. This questionnaire consists of 19 questions with four Likert scale points as alternative answers in each item. Item asked includes: "Past success gives confidence in facing new challenges." Respondents are expected to fill in answers according to the circumstances felt in the last 1 month. The measurement results of the resilience variable are then divided into two categories, namely low resilience (<50) and high resilience (> 50). The measurement scale used for Impostor Phenomenon variable is Clance Impostor Phenomenon Scale (CIPS) questionnaire consisting 21 items which include three factors formulated by Chrisman (1995) through factor analysis namely fake (containing an item of doubt on self and centered on intelligence and ability), Luck (error assessment of success) and discount (tendency to reduce the meaning of success achieved). Each question consists of five Likert scale points as an alternative answer that can be chosen. Item asked included: "I am worried that people are important for me to know that my ability is not as they expect." The measuring results of the Impostor Phenomenon variable will be divided into three categories, namely low Impostor Phenomenon (<36), moderate Impostor Phenomenon (37-60), and high Impostor Phenomenon (> 60).

**Statistical Analysis :** Data is processed and analyzed using IBM Statistical SPSS 25. Univariate analysis is conducted to describe the frequency distribution, and percentage of each variable studied. Bivariate analysis was performed using *Chi-Square* categorical comparative hypothesis test and *Kendall's Tau-B* correlation Test. Because it does not fulfill the requirements of *Chi-Square* due to expected count <5, the combination of cells is carried out as an alternative test. Multivariate analysis is conducted using multiple logistics regression to estimate the amount of probability and estimate the most significantly influential independent variables with the occurrence of phenomenon imposters.

### 3. Results and Discussion

Respondents in this study consisted of 99 students in their 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> year medical student program who fulfilled the inclusion criteria, and no respondents were excluded. Table 1 presents a description of the characteristics of the respondents.

Tabel 1  
*Characteristics of Respondents and Distribution of Variables*

Characteristic	Amount (n=99)	%
<b>Age</b>		
17 Years old	1	1,0
18 Years old	3	3,0
19 Years old	25	25,3
20 Years old	34	34,3
21 Years old	29	29,3
22 Years old	6	6,1
23 Years old	1	1,0
<b>Gender</b>		
Men	27	27,3
Women	72	72,7
<b>Batch</b>		
2018 (2 <sup>nd</sup> year)	33	33,33
2019 (3 <sup>rd</sup> year)	33	33,33
2020 (4 <sup>th</sup> year)	33	33,33
<b>GPA</b>		
3.00 - 3.45	1	1,0
3.50 - 3.74	84	84,9
3.75 - 3.99	14	14,1
4.00	0	0
<b>State Anxiety</b>		
Low	40	40,4
Moderate	26	26,3
Severe	33	33,3
<b>Trait Anxiety</b>		
Low	32	32,3
Moderate	27	27,3
Severe	40	40,4
<b>Resilience</b>		
Low	13	13,1
High	86	86,9
<b>Impostor Phenomenon</b>		
Low	2	2,0
Moderate	40	40,4
High	57	57,6

Based on the results obtained, 40 respondents (40.4%) have low State Anxiety, 26 respondents (26.3%) have moderate State Anxiety, and 33 respondents (33.3%) have severe State Anxiety. Unlike the results of Trait Anxiety, 32 respondents (32.3%) have low Trait Anxiety, 27 respondents (27.3%) have moderate Trait Anxiety, and 40 respondents (40.4%) have severe Trait Anxiety. World Health Organization (WHO) estimates that in 2020 anxiety accounted for about 15% of the global morbidity rate. According to the American Psychological Association (2013), anxiety is the most common psychological problem found in students (41.6%), followed by depression (36.4%), and the remaining 35.8% was a problem of interpersonal relations.

Anxiety does not escape in human life that arises in response to stress or conflict conditions. Feelings of anxiety closely with a sense of worry, anxiety, fear, and unentry sense that is associated with the threat of danger both from within and outside individuals. Anxiety tends to cause confusion and distortion of perception to affect student learning outcomes. The distortion can interfere with the process of learning by reducing the ability to concentrate, reducing memory, and interfering with the ability to connect one thing with another (Achmad, 2019).

Based on the distribution of resilience data, 13 respondents (13.1%) had low resilience, and 86 respondents (86.9%) had high resilience. High resilience means that respondents can regulate

emotions well; it helps in responding and analyzing the causes of problems appropriately and rationally to produce good solutions. Brown & Benald (2001) said that campus environmental support is related to student academic resilience. A sense of ownership can be a significant predictor of academic resilience to support theories that say that students involved in various academic activities and have a positive relationship with the campus environment will have greater academic resilience (Utami, 2020). The results showed that 2 respondents (2.0%) had low Impostors, 40 respondents (40.4%) had moderate Impostors, and 57 respondents (57.6%) had severe Impostors as the dominant category of Impostor Phenomenon. Impostor Phenomenon in students is generally encountered because individuals are not yet familiar with their new position or role, academic pressure, competitiveness between students, lack of emotional support, and perception of unproofable expectations (Levant, 2020). This can happen because medical students are perceived as individuals with high achievements that provide a lot of burdens and pressures. Doubt over their capabilities and fear of failure from others expectations can be one of the reasons for the occurrence of this phenomenon.

Tabel 2  
*Distribution of Variables Based on College Year*

Variable	2018	2019	2020
State Anxiety Low Moderate Severe			
Trait Anxiety Low Moderate Severe	11	19	10
Resilience Low High	13	4	9
Impostor Phenomenon	9	10	14
Low Moderate High			
	11	11	10
	12	7	8
	10	15	15
	3	7	3
	30	26	30
	1	0	1
	16	11	13
	16	22	19

The results showed that respondents from the class of 2018 tend to experience moderate State Anxiety and Trait Anxiety. This result could be influenced because batch 2018 as a final year student is completing the final thesis, which leads to experiencing intense academic pressure that could cause excessive stressors. In line with research conducted by (Arisyna, 2020) at the Faculty of Medicine, Airlangga University, anxiety results dominated by 4th year students (20.3%), followed by 1st year (19%) and 3rd year students (11.8%). Resilience variable results obtained that both 2018, 2019, and 2020 have high resilience. The level of resilience will generally lower in the first year of academics, but it will increase as the semester increases lived (Tarigan, 2021). In the results of Impostor Phenomenon variables according to the years of studies, it was obtained that both 2018, 2019, and 2020 tend to have a high Impostor Phenomenon. These results are in line with several studies that have been conducted that the year of study programs do not have a significant impact on the occurrence of the Impostor Phenomenon. The transition from students becoming pre-clinical students, as well as pre-clinical students, into the clinical environment is a new challenge for individuals who can increase feelings of self-doubt and fraud (Chandra, 2019).

Tabel 3  
Variable Distribution Based on Gender

Variable	Men	Women
State Anxiety Low Moderate	13	27
	11	15
Severe	3	30
Trait Anxiety		
Low	10	22
Moderate	9	18
Severe	8	32
Resilience		
Low	3	10
High	24	62
Impostor Phenomenon		
Low	0	2
Moderate	16	24
High	11	46

On the distribution of anxiety according to gender, the results obtained that men from both 2018, 2019, and 2020 tend to have low State Anxiety and Trait Anxiety. Inversely women tend to have a severe category for both State Anxiety and Trait Anxiety. This can be influenced by life experiences of fear, physiological reactivity, and avoidance. Kaplan and Sadock stated that women are twice times commonly worried as men. Anxiety disorders among women can also be triggered or worsen when they face hormonal fluctuations such as puberty, premenstrual, pregnancy or postpartum, and menopause transitions (Hantsoo, 2017). In addition, women are considered more sensitive and use their feelings also affective aspects, while men are considered to have a strong mentality and cognitive aspects in facing dangerous responses (Bachri, 2017).

Resilience variable results obtained both men and women results have high resilience. This result is strengthened by Morano's research (2010) which states that the level of resilience is not influenced by gender. In contrast to Erdogan's research (2015) states that men tend to have higher resilience capabilities than women. This is triggered because, generally, women are more emotional than men, so they can be affected deeper after passing traumatic events.

In the results of the Impostor Phenomenon variable according to gender, men tend to feel moderate Impostor Phenomenon while women tend to feel high Impostor Phenomenon. Initially, Clance and Imes (1978) reported Impostor Phenomenon as a phenomenon that occurred exclusively in women, but further research shows that the Impostor Phenomenon can be felt by both men and women (Bravata, 2020), but tends to be higher in women (Chandra, 2019).

Tabel 4  
Bivariate Analysis

Variable	Impostor Phenomenon	
	p	r
State Anxiety	0,005	0,303
Trait Anxiety Resilience	0,000	0,582
	0,016	-0,273

Based on statistical analysis using *Chi-Square* test, P-value for State Anxiety is 0,005 ( $P < 0,05$ ); *Kendall's Tau-B* R-correlation results 0.303 P-value and Trait Anxiety is 0,000 ( $P < 0,05$ ); *Kendall's Tau-B* R-correlation 0.582 which indicates that both State Anxiety and Trait Anxiety have a significant positive association of Impostor Phenomenon. An impostor tends to feel both Trait Anxiety and State Anxiety and often occurs in individuals who have high academic achievements (Wulandari, 2007).

High emotional anxiety is accompanied by the intensity of physiological and cognitive anxiety in individuals vulnerable to make individuals experiencing the Impostor Phenomenon. Thus, it cannot be denied that the Impostor Phenomenon can emerge from an irrational belief

or fixed mindset that can cause uncontrolled worries or anxiety. This is supported by several studies that show that Impostor Phenomenon comes from psychological pressure that causes excessive depression, fatigue, anxiety, and negative emotions (Chandra, 2019)

Individuals who have felt as Impostors show high scores to be anxious, depressed, unstable emotions, and vulnerable to psychological pressure and other negative effects (Chae, 1995). Impostor Phenomenon can form a mindset that is difficult to change, such as worrying that something bad will happen (fear of failure), being unable to accept recognition or praise, and fear of being judged by others (Clance, 1988). Academic anxiety felt by students can trigger the disruption of the mindset, behavior, and physical response of the individual because the possibility of performance displayed is not well received (Ottens, 1991). The high level of anxiety, depression, and dissatisfaction in his life, encouraged an impostor to seek professional assistance (Sakulku & Alexander, 2011).

Based on statistical analysis using *Chi-Square* test, P-value for resilience is 0.016 ( $p < 0.05$ ) and *Kendall's Tau-B* R-correlation -0.273, which shows that resilience has a significant negative association with Impostor Phenomenon. Resilience is characterized by several characteristics, such as the ability to deal with difficulties, toughness in dealing with stress, or bouncing back from emotional pressure. Someone with high resilience is generally persistent, more sensitive to asking and getting help from others when finding difficulties, and tends to have a purpose and perseverance full of hope for their lives. Knowing who should ask for help when dealing with problems is one of the factors forming resilience, namely the control factor (Connor, 2003). In contrast, Impostors feel guilty for their achievements and are generally afraid to ask for help from others because he is reluctant to be identified as an individual not competent and negatively evaluated by others.

Previous research stated that students who have Impostor Phenomenon tend to have a maladaptive coping strategy, lack of resilience, and self-compassion. This can be explained because an impostor has a fear of looking like a fraud to people around him, so this affects his social adjustment (Heinrich, 2020) The results of this study are in line with research conducted by Safaryazdi (2014) on 150 respondents in the Province of Mazandaran, Iran, with the result that there is a significant negative relationship between resilience and Impostor Phenomenon ( $R = -0.201, p < 0.05$ ). In addition, research conducted by Camara (2022) on 425 medical students at Christus University Center, Fortaleza, Brazil, found an inverted correlation between resilience and the Impostor Phenomenon ( $\rho = -0.409; P\text{-value} < 0.001$ ). Self-compassion and self-esteem as a factor of resilience are considered to have the greatest potential to deal with Impostor Phenomenon (Patzak, 2017) (Heinrich, 2020). Individuals with self-compassion have a lower fear of failure and are persistent in trying again after failure. In addition, self-esteem is also seen as an important part of resilience (Henriksen, 2016) because it functions as a capacity to strengthen individual resilience, which will bring a higher level of resilience. Lack of resilience capabilities in individuals can inhibit the formation of the meaning of life (Uyun, 2012) found in individuals with Impostor Phenomenon.

Tabel 5  
Multivariate Analysis

Variable	Sig.	Exp(B)	R Square
Resilience State Anxiety	0,502	2,278	-
Trait Anxiety	0,460	1,850	-0,429
	0,000	0,042	

The Trait Anxiety variable is the most influential variable in the occurrence of Impostor Phenomenon. This can be expressed through the value of P-value 0,000  $< 0.05$ , the value of the

odds ratio (OR) 0.042 (CI 95%: 0.011-0.152) and the R-square value at 0.429, meaning that the Trait Anxiety has an effect of 42.9% on the Impostor Phenomenon and the other 57.1% is influenced by other things outside of research models such as threats, conflict, fear, and unmet needs.

#### 4. Conclusion

Impostor Phenomenon is a phenomenon that is often found in medical students. Students are expected to increase literacy related to the concept of this phenomenon to be able to recognize and take preventive measures of feelings as Impostors and also conduct a periodic evaluation of individuals' performance to be able to recognize their strengths and weaknesses of themselves. Self-awareness related to anxiety needs to be increased so individuals can find help from professional staff such as psychiatrists and psychologists if needed. High resilience needs to be maintained for healthy mental and physical by applying a healthy lifestyle.

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