

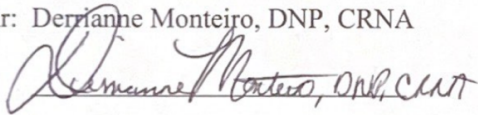
**The Effects of Impostor Phenomenon on the Minority CRNA Student**

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### **Abstract**

Imposter Phenomenon (IP), better known as Impostor Syndrome, may be defined as a state of fearing intellectual phoniness and an inability to internalize success. What was first discovered to appear in high-achieving women; now affects nearly 70% of the general population and is more prevalent in under-represented groups that includes racial, ethnic, gender, LGBTQ, religious, and other minorities. This project aimed to assess the impact of IP on the minority certified registered nurse anesthesia (CRNA) student, and the effectiveness of a small group discussion to minimize IP effects. The participants were enrolled in the graduating class of 2024, 2025, and 2026 of a CRNA program located in the Midwest. To implement this project, an online survey was administered using the survey software program *Qualtrics*. Qualtrics was utilized to deliver the survey link to respondent emails and collect responses electronically. The participants were required to complete the Clance Impostor Phenomenon scale pre-test to assess the personal impact of IP. Approximately 2 weeks following the initial survey, a brief PowerPoint presentation was presented via WebEx immediately followed by small group discussion including volunteers from the CRNA profession and a post-survey. It should be noted that information was only collected on the CRNA students and not the CRNA participants. The results of this project were limited because of the small sample size and additional research should be conducted.

**KEYWORDS:** impostor syndrome, impostor phenomenon, nurse anesthesia students and impostor syndrome, nursing salons, Marie Manthey, fraud, coping with impostor syndrome

## **The Effects of Impostor Phenomenon on the Minority CRNA Student**

### **Introduction**

Impostor phenomenon (IP), also known as Impostor syndrome (IS) or impostorism, was first described by psychologists Clance and Imes (1978) as a state of fearing intellectual phoniness and an inability to internalize success in a group of high-achieving women. Impostor phenomenon is more frequently and incorrectly referred to as impostor syndrome. Because there is no official diagnosis in the Diagnostic and Statistical Manual (DSM) for mental health, it is more accurately referred to as impostor phenomenon (Arleo et al., 2021). With increasing recognition of IP, it has been estimated to affect 70% of the general population and appears to be more prevalent in individuals who identify with under-represented groups that included racial, ethnic, gender, LGBTQ, religious, and other minorities (Rivera et al., 2021). The effects of IP can lead to psychological and emotional distress resulting in anxiety, depression, substance abuse, and suicide (Rivera et al., 2021). Those suffering from IP constantly downplay their accomplishments which often leads to “sabotaging their careers” (Chrousos, 2020) and stifling their professional growth. At an organizational level, those who suffer from IP are less likely to apply for promotions for fear of failure and fear of being found out as a “fraud” leading to decreased diversity, especially in leadership positions (Rivera et al., 2021). Those suffering from impostor phenomenon have an innate fear of being discovered as a fraud or non-deserving professional, despite their demonstrated talent and achievements (Chrousos, 2020). Racial isolation may also contribute to feelings of IP. “In college students belonging to racial minorities, mental health problems have been better predicted by impostor feelings than by the stress associated with their minority status” (Chrousos, 2020, p. 749). Perhaps unintentionally, white peers tend to pay less attention and give less credit to their black peers which further feed into

the feelings of fraudulence attributed to IP. Lack of recognition can limit opportunities for growth, decreases engagement and effort, undermines self-worth, and exacerbates attrition (Mhyre et al., 2022). Additionally, the feelings of self-doubt and not belonging to a particular group can lead to the feeling of being discovered as a fraud (Rivera et al., 2021). To effectively increase diversity, open discussions will help to increase the visibility of IP and to “normalize these experiences instead of pathologizing them” (Chrousos, 2020).

### **Background**

The Association of American Medical Colleges (AAMC) recognized the need to improve physician diversity and began to recruit minority students in the 1960s, but progress has been slow even with the increasing engagement by the federal government in 1985 (Mhyre et al., 2022). The racial disparities in medical professions in relation to their numbers in the general population were defined as underrepresented in medicine (URiM) by the AAMC in 2003 (Mhyre et al., 2022).

The ongoing need to increase a culturally diverse workforce to be a better reflection of the diverse populations served and to work to reduce health disparities also led to the acknowledgment of the need to increase the diversity among the doctoral-prepared underrepresented minority (URM) in nursing (Phillips et al., 2022). The lack of URM doctoral student application and success can be attributed in part to the self-perceived inadequacies symptoms of IP (Chrousos, 2020). IP for minority students leads to them questioning their ability and whether they truly belong in academia (Phillips et al., 2022). The presence of IP in URM doctoral students has specific implications requiring the sufferer to navigate racial isolation, microaggressions from their majority counterparts, and the need to prove themselves strictly because of their race (Phillips et al., 2022). An additional factor that plays into the

symptomology of IP includes the frequent dismissal of contributions and suggestions from the URM population (Chrousos, 2020). A chronic lack of acknowledgment and endorsement will fuel the deepening sense of unworthiness that is tied to IP (Chrousos, 2020). The key to changing the effects of IP in the URM population is to heighten the awareness of the phenomenon with persistent intervention and innovation, particularly amongst senior colleagues to junior colleagues, to help recognize, manage, and intervene when actions take place that may intensify the feelings of IP (Arleo et al., 2021). Awareness will help those experiencing IP realize the microaggressions they may experience has nothing to do with their abilities, qualifications, or the value of their thoughts and concepts (Chrousos, 2020).

One way to increase self-awareness of the dynamics of IP for people who are experiencing it is through the sharing of information and insights in a comfortable setting where colleagues can gather conveniently (Chrousos, 2020). Marie Manthey is the creator of Nursing Salons. When creating Nursing Salons, Manthey wanted to create an informal environment where nurses from all walks of life could share, connect, and empower each other by discussing what was on the hearts and minds of the participants. Manthey says, "Salons are lively gatherings where people engage in big talk--talk that amuses, challenges, amazes, and is sometimes passionately acted upon. Most importantly, salons are gatherings where each participant forms and informs the conversation. Unlike formal meetings, they are opportunities where people can casually connect and share their experiences" (Sinkfield-Morey, 2019). In the spirit of Marie Manthey's Nursing Salon, the researcher hypothesizes that hosting an informal small group discussion in the academic setting may yield a similar impact.

### **Problem Statement**

Impostor phenomenon is an internalized feeling of not being good enough or viewing one's success as luck versus the results of hard work and dedication. Although many may be affected by impostor phenomenon, the underrepresented and marginalized populations often become stagnant in their goals due to these perceived feelings, and the fear of being discovered as a "fraud" decreases their willingness to be transparent and/or vulnerable to help identify the root of their feelings. Bringing awareness to IP and providing a safe and supportive environment to discuss these feelings may help to alleviate the psychological distress caused by those who are suffering in silence. This leads to the following question: Will attending an informal small group discussion for minority Student Registered Nurse Anesthetist (SRNA) and minority Certified Registered Nurse Anesthetist (CRNA) be a beneficial tool in helping individuals understand impostor phenomenon, allow them to assess the impact of its effects on their own lives, and providing them the opportunity to feel supported through their journey of personal success?

### **Needs Assessment and Gap Analysis**

Although the modern nursing workforce is diverse, minority experts might be reluctant to contribute to their professional community because of the IP. While IP has been extensively covered in academic sources, further research is needed to assess its effects on minority healthcare providers (Chrousos, 2020; Holliday et al., 2019; Ogunyemi et al., 2021). Furthermore, efforts should be invested in detecting and elaborating on the strategies to address IP in minority CRNA student who may become the backbone of the national healthcare workforce. A repertoire of interventions should be put in place to convince minority CRNA students of the enormous potential they possess and engage them in advancing the national healthcare network for the sake of stakeholders' well-being and prosperity.

### **Project Aims and Objectives**

The goal of this project is to determine if hosting small group discussions in the academic setting will help to expose and lessen the effects of Impostor Phenomenon in minority CRNA students. For this study, the term “minority” may include persons who identify with underrepresented racial/ethnic, cultural, religious, sexual orientation, and gender backgrounds. A virtual small group discussion comprised of volunteers from the current cohorts of CRNA students and minority representatives in the CRNA profession, will be facilitated by the researcher. The students will be given a survey before and after the small group session. The survey will be used to assess the volunteer’s knowledge of IP and its impact on how they view their success. A different survey will be offered post-intervention to determine the effectiveness of the small group session in identifying and alleviating the impact of IP in the academic setting. The projected timeline for completion of the intervention and the pre-and post-survey is Spring of 2024. An additional goal of this study is to increase the support and belongingness in the underrepresented groups.

### **Theoretical or Conceptual Framework**

The theoretical framework used to guide this research is the self-determination theory (SDT). SDT focuses on motivation, development, and well-being based on the innate psychological needs, that include autonomy, competence, and relatedness (Deci & Ryan, 2009). According to Beck, the first component, "an autonomous being" ‘can make, and carry out, decisions to govern his/her actions", however, the feeling of autonomy is also impacted by the individual's environment. Therefore, an individual may have the ability to make their own decisions, but depending on their environment, they may perceive they lack the skills to do so (Beck, 2016). The second component, competence refers to perceived self-efficacy and self-



competence, and these perceptions play a significant role in autonomy which impacts one's motivation (Beck, 2016). The third component of SDT is relatedness which suggests that the sense of belongingness with positive and secure relationships will increase the internal motivation in individuals. The theory suggests that a person requires all these needs to be met to function at their best, feel more motivated, and experience better mental health.

SDT is the chosen framework to guide this research because people who identify with IP may struggle with one or more of these three components. They may downplay their competence and sense of autonomy with luck, instead of feeling like they deserve their achievements. The third component of SDT, relatedness, may be impacted for many reasons. Individuals may tend to self-isolate for fear of their 'fraudulence' being identified, the lack of representation in students and faculty, the intentional and/or unintentional micro-aggressive behavior experienced by URM groups from peers and faculty, and the societal stigmas that have been engraved in both URM groups and their peers.

### **SWOT Analysis**

Some of the strengths identified with this project include the increased ability of participants to acknowledge symptoms of IP and its impact on their life and increasing the sense of belongingness, value, and support for URM groups by using the social connection as an intervention. The small group session will be held virtually which will remove the need to find a physical location and increase the participants comfort levels and availability. This will also increase the likelihood that professional participants can participate from a distance.

This project may present opportunities for the academic institution to identify barriers that members of URM groups face while matriculating through a graduate program. By identifying these barriers, academic institutions can ensure there are support services available to

meet the needs of all their students and help add value to marginalized communities.

Additionally, the small group session will connect the minority CRNA student with CRNAs who may have shared similar experiences as them, allowing CRNAs to share their insights, and thereby, encourage networking and fostering collaborative relationships with future colleagues.

A noticeable weakness is the lack of research that has been conducted on IP and its effect of URM CRNA to guide the project. Another weakness is the potential for reluctance felt by volunteers to contribute their thoughts freely, resulting in a lack of transparency, vulnerability, and openness from all involved which could impact the results/effects of this project. Individuals dealing with IP already struggle with feeling fraudulent or inept. It will require some finesse to provide an environment where they feel safe to share their feelings. There is also the potential that the experienced CRNAs, themselves, are struggling with IP and will not be able to serve in the capacity that will be supportive to the minority CRNA student. URM groups are not heavily represented in the CRNA profession which may add to the difficulty of finding professional volunteers to connect with every student participating in the study.

Potential threats to this research include not having enough participants to determine the effectiveness of the proposed intervention, and the lack of empathy and mutual respect for perceived feelings of IP that may inhibit an authentic interaction. Additionally, the researcher has limited knowledge in facilitating the small group session to ensure the group stays focused and utilizes the time together, appropriately. There is also the high risk of attrition for student volunteers based on their academic schedule.

### **Literature Search Methodology**

This literature review was done to define impostor phenomenon (IP), examine its effects on underrepresented minority (URM) groups, and to determine if participating in a small group

discussion that includes URM CRNA student and URM CRNA will help to alleviate the symptoms of IP. Keywords such as *impostor phenomenon, nursing salons, certified registered nurse anesthetist, student registered nurse anesthetist, graduate students, minorities, diversity, mental health, self-determination theory, stress, and wellness* were used to research the literature. The literature review was conducted from September 2022 to December 2022. BOOLEAN phrases used for this literature review were impostor phenomenon AND minority graduate students, impostor syndrome AND Student Registered Nurse Anesthetist, minority AND graduate school, and impostor syndrome AND diversity. Exclusion criteria used during the search included articles greater than ten years, articles that were not related to impostor syndrome and its effects on graduate students, articles that were not in English, and articles that did not use small group discussions as an intervention. Inclusion criteria consisted of articles that were published within ten years, articles written in English, articles that used small group discussions as an intervention, URM groups that included gender, race/ethnicity, sexual orientation, culture, and religion, and articles that defined the impostor syndrome and its symptomology.

### **Literature Review Synthesis of Information**

#### **The Effects of Impostor Phenomenon**

Impostor phenomenon is characterized as chronic feelings of self-doubt and internalized fear of being exposed as an intellectual fraud. Sufferers are incapable of internalizing and taking ownership of their accomplishments, competencies, or skills. (Ogunyemi et al., 2021). To improve diversity among graduate students, institutions need to implement policies to acknowledge and combat the feelings of self-doubt (Chrousos, 2020). According to Chang et al.,

"Unaddressed impostor feelings impede developing interest in science and self-efficacy and have a dispiriting effect that perpetuates unsatisfactory diversity in the health science workforce when such feelings are experienced more by those historically underrepresented in the workforce" (2022). Chrousos has found that IP occurs more frequently in high achievers, women, and underrepresented racial, ethnic, and religious minorities (2020). Additionally, research suggest that IP should be tackled on an organizational level to cultivate female mentors, role models, and encouraging leadership training (Holliday et al., 2019). Dr. Valerie Young, another expert on IP, has founded five "competence subtypes" or self-undermining, unrealistically idealized self-perception sub-types that those struggling with IP adopt that may hold them back from reaching their full potential which include: the perfectionist, the natural genius, the super-person, the expert, and the soloist (Ogunyemi et al., 2021) (See Appendix E). Self-doubt is also developed through the individual's ideas about mindset. A study suggests there are two mindsets: growth mindset and fixed mindset. Growth mindset believes ability is derived from acquired skills, continued practice, and experience, while a person with a fixed mindset believes they are born with their abilities, and they cannot be altered or developed (Chandra et al., 2019).

### **Self-Determination Theory**

The self-determination theory (SDT) is a theory based on motivation, development, and well-being. According to the theory, the three basic needs of SDT are autonomy, competence, and relatedness, and these are necessary for one to feel psychologically at their best (Neufeld et al., 2022). To note, the theory suggests that for it to be effective, autonomy must first be met for the individual to then meet the needs of competence and relatedness (Beck, 2016). Furthermore, positive feedback also appears to play a role in perceptions of impostor phenomenon (IP). In fact, with IP, individuals falsely and incorrectly attribute their success to luck (autonomy),

discount their achievements (competence), and feel like a fake (relatedness) (Neufeld et al., 2022). Additionally, individuals with elevated IP levels tend to attribute their successes to external factors like luck, charm, or working harder than others, rather than having specific talents or skills (Vaughn et al., 2019). Interestingly, a study conducted on medical students suggested that those who are more self-determined and whose basic psychological needs are more supported in their medical program, will experience less frequent and severe IP symptoms (Neufeld et al., 2022). Moreover, the literature suggests that the increased prevalence of mental health issues related to IP could be directly related to the lowered well-being experienced by individuals who are not achieving their SDT needs (Beck, 2016).

### **Small Group Discussions**

“Open discussions about Impostor Phenomenon at the institutional level should put a name to these feelings and normalize them as common experiences rather than pathologizing them” (Chrousos, 2020, p. 750). Encouraging connectedness among peers can thwart feelings of isolation and increased relatedness concept of SDT. A study completed at Stanford University shown that small groups improved IP, connection with others, and allowed exposure and tolerance to diverse perspectives (Gold et al., 2020). Additionally, having open discussions about IP, can expose the negative ways it has unknowingly affected the lives of the individuals struggling with IP. Following a study on cohorts enrolled in medical education, participants' viewed IP as a source of stress, unfulfilled potential, and poor relationships (Ogunyemi et al., 2022). Taken together, this review points the way to the efficacy of small group participation on the topic of IP to address current or future feelings of IP.

### **Project Design**

The project design will consist of a pre- and post-survey that will include both quantitative and qualitative data with a PowerPoint presentation and a small group discussion being the intervention. All students in the CRNA program who self-identify with belonging to underrepresented minority (URM) groups will be invited to complete a pre-survey to assess to what degree they identify with IP and how it impacts their lives. Following the initial survey, there will be a virtual meeting that encompasses a brief PowerPoint presentation, small group discussion facilitated by the researcher with CRNA students and CRNA professionals from URM and a post-survey. The goal of the group discussion is to create a platform to allow students and professionals to engage in their experiences with IP and how they overcame them. Participants will be provided a link to be allowed to join the virtual meeting. The goal of this session is to correctly identify IP, unveil the effects of IP in the students personal and professional lives, and help them see the value and uniqueness they bring to the table. After the completion of the small group discussion, participants will complete the post-survey to determine the benefits of the intervention.

### **Population and Setting**

The participants of this project will be students enrolled in the doctoral-prepared CRNA program, at a private, Catholic institution in the Midwest. The students will be from the graduating CRNA cohorts of 2024, 2025, and 2026. The surveys will be conducted via Qualtrics. The institution offers graduate Health Profession programs such as Nurse Anesthetist, Family Nurse Practitioner, Osteopathic Medicine. The small group discussion will be held virtually. CRNA students and CRNA professionals may log on from a location of their choosing. Participants will be provided a link to join the virtual session. CRNAs will be volunteers from

multiple locations. All participants are volunteers and may revoke participation at any time.

Participants will consist of various ages and members of URM groups.

### **Measurement Instruments**

The data collection portion of this project will be completed over the course of one month. Participants will complete a 25-question pre-survey. The survey will consist of 20 likert style questions from the Clance IP Scale (Appendix C) assessing IP's impact in their personal and professional lives, and 2 Yes/No/I don't know questions. The Yes/No/I Don't Know questions will include: Have you heard of impostor phenomenon? and Do you believe impostor phenomenon affects your life? Additionally, the pre-survey will include demographic questions to help determine if the participant identifies with an URM. Before completing the post-survey, participants will be expected to participate in a scheduled virtual Webex hosted by the researcher lasting approximately 30-60 minutes. During the Webex, there will be a brief PowerPoint presentation and an open dialogue about IP, the symptoms of IP, how IP has affected professional growth and development, its impact on self-worth/self-esteem, and how to cope with IP. The researcher's goal is to help facilitate the dialogue, time management, and ensure a safe environment to encourage participation in a judgement free manner. After the Webex is complete, a post-survey will be sent out via Qualtrics given to participants to assess the benefits of the intervention. The questions will include: In your own words, define impostor phenomenon, *Name an intervention to lessen the impact of impostor phenomenon*, *Prior to this project, did you think impostor phenomenon impacted your life? After this project, do you think impostor phenomenon impacts your life? Do you think the group discussion was beneficial? and Would you like to have more group sessions on various topics that are important to you? If so, name a topic you would like to discuss.* Results of the survey will be anonymous; CRNA student

will be asked to use the last 4 digits of their school identification for tracking purposes only. Demographic questions will include age, sexual orientation, race/ethnicity, gender, marital status, and religious affiliation. The purpose of the study was to determine if creating a bias-free social setting for open dialogue will alleviate the impact of impostor phenomenon.

### **Data Collection Procedures**

The pre-and post-survey was completed via Qualtrics. Participants will use the last 4-digits of their school identification card as an identifier. The survey will contain demographics data where participants may choose to self-identify with their chosen minority identifier. Exclusion to participate in the study based on minority status was left to the participants discretion. The use of the identifier will allow the researcher to match the pre- and post-survey responses for each participant, ensuring they are analyzing data from the same individuals. Qualtrics is a quick and efficient way to build, distribute and analyze data. Qualtrics also exports data into Excel documents. The qualitative data will be reviewed to see what common themes emerge from the data. The top 2 themes will be used for dissemination. Using the identifiers as trackers, Qualtrics will make it easy to quantify the pre-survey questions. Based on the data gathered and analyzed, the researcher will determine if the small group discussion helped to alleviate the impact of impostor phenomenon in the participants' lives.

### **Ethical Considerations**

Before conducting the project, the researcher will seek approval from the institution IRB. Privacy will be maintained by using the last 4 digits of the participants' school identification for tracking purposes. Information will be stored in Qualtrics and only the researcher will be able to



access the information. Because there are no risks, consents are not required. Once dissemination is completed, all data will be deleted.

### **Project Evaluation Plan**

Qualtrics allows for the data to be easily exported to SPSS. SPSS will be used to complete a statistical analysis of the data collected. Qualtrics will also allow for a visual representation of the results via a bar graph. The scoring system for Clance IP scale will determine the severity of IP for everyone. For the qualitative data, the themes that emerged from the data collected will be disseminated.

### **Results**

Of the many candidates invited to participate in the study, there were 8 participants and 7 provided informed consent to fill out the survey form, which means the response rate was 87.5%. However, it is worth stressing that of 7 respondents who provided informed participation consent, only 5 responded to all survey questions. The researcher discovered this fact when analyzing the collected data.

When analyzing the demographic characteristics of the cohort, most of the participants (75%) who chose to provide relevant data were ages between 31 and 35. Of participants who filled the demographic section of the survey, 75% were female, and 50% identified themselves as Hispanic or Latino. Half of the participants for whom English was not their first language reported Spanish as their mother tongue. Seventy-five percent of participants who elected to mention their sexual orientation identified themselves as heterosexual. Half of the respondents who decided to disclose their religion identified themselves as Christians, while 25% of respondents were affiliated with Judaism.

57% of participants agreed to discuss the representation of their ethnicity, culture, and religion in their graduate program. The researcher reported equal percentages of respondents who agreed and disagreed that those elements were well-represented in their graduate program (50% and 50%). As this finding is insightful, it is discussed further in this report.

The participants' responses to the survey questions are reported in the table below.

*Table 1.* Participants' responses to the survey questions.

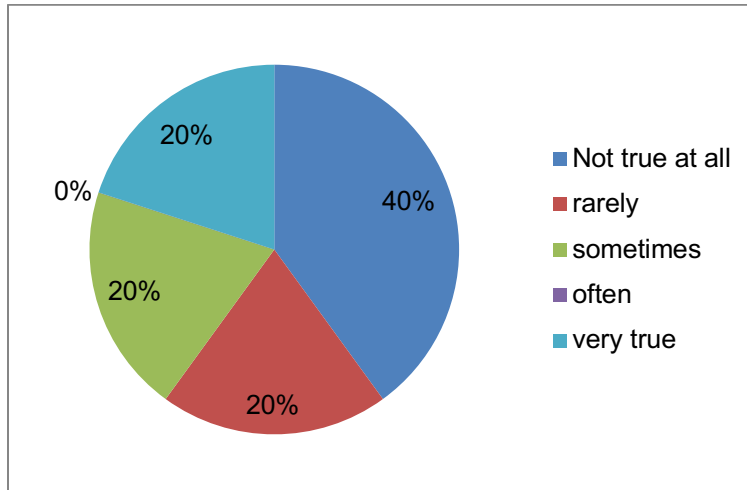
	1 (Not true at all)	2 (Rarely)	3 (Sometimes)	4 (Often)	5 (Very true)
I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task.	-	20%	20%	20%	50%
I can give the impression that I'm more competent than I really am	20%	-	60%	20%	-
I avoid evaluations if possible and have a dread of others evaluating me.	20%	40%	40%	-	-
When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future.	-	40%	20%	40%	-
I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people.	40%	20%	20%	-	-
I'm afraid people important to me may find out that I'm not as capable as they think I am.	80%	-	20%	-	-
I tend to remember the incidents in which I have not done my best more than those times I have done my best.	-	40%	20%	20%	20%
I rarely do a project or task as well as I'd like to do it.	20%	-	80%	-	-
Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error.	60%	-	40%	-	-
It's hard for me to accept compliments or praise about my intelligence or accomplishments	-	40%	40%	20%	-
At times, I feel my success has been due to some kind of luck.	40%	20%	20%	-	20%

I'm disappointed at times in my present accomplishments and think I should have accomplished much more.	-	80%	20%	-	-
Sometimes I'm afraid others will discover how much knowledge or ability I really lack.	40%	20%	40%	-	-
I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt.	20%	20%	40%	20%	-
When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.	20%	40%	40%	-	-
If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done.	20%	20%	20%	40%	-
I often compare my ability to those around me and think they may be more intelligent than I am.	20%	20%	60%	-	-
I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well.	20%	20%	40%	20%	-
If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact.	-	40%	40%	20%	-
I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.	20%	20%	40%	20%	-

### Discussion

The collected data allowed the researcher to assume that the respondents acknowledge the amount of effort that they invest in their studies and careers. Only 20% of respondents attribute their accomplishments to luck or other external factors that are beyond their control. The respondents' attitude toward their accomplishments is reflected in the chart below.

*Pic. 1. At times, I feel my success has been due to some kind of luck*

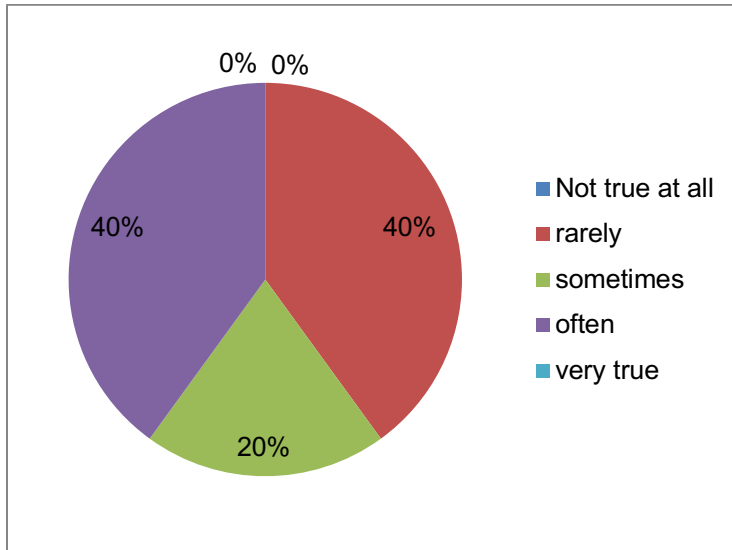


The analysis of the participants' responses makes it obvious they tend to acknowledge and praise the amount of personal effort invested to succeed in studies, career, or other domains.

However, the respondents' acknowledgement of their own worth does not make them immune to comparing their accomplishments with those of other people. In the study, 60% of respondents agreed that they used to compare their accomplishments with the accomplishments of other people and thought other people were more intelligent.

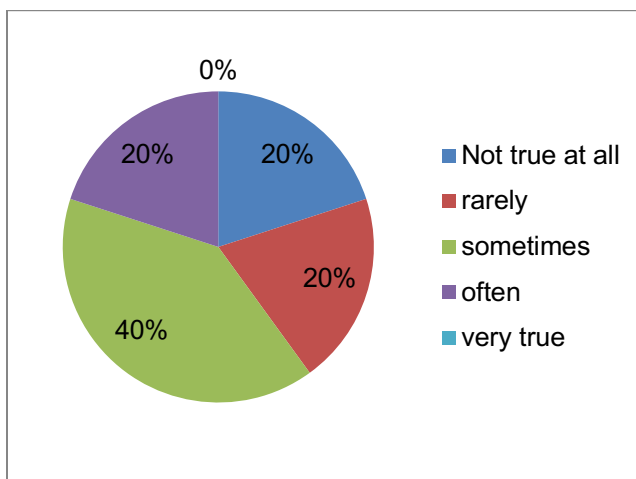
Another noteworthy discovery is that the comparison of their performance with that of other people forced the respondents to focus on their failures rather than achievements. The participants' approach to assessing their performance is reflected in the chart below.

*Pic. 2.* When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future



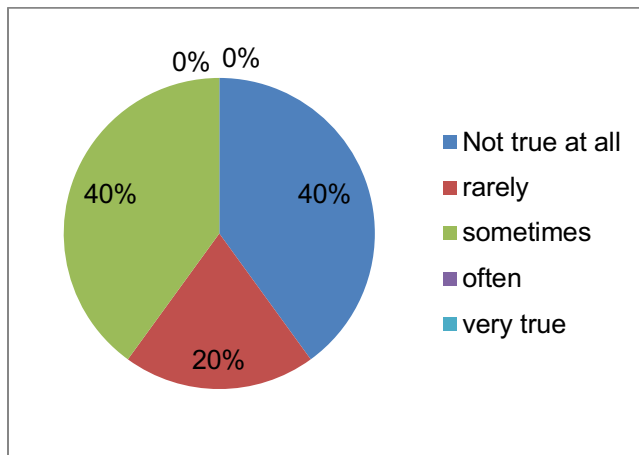
The participants’ focus on their failures rather than success is believed to have several implications about their future performance in the selected field. First, the participants might have low morale if they believe they are underperforming in the selected field. The respondents’ attitude toward their ability to get the most out of available opportunities is shown in the graph below.

*Pic. 3.* I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well.



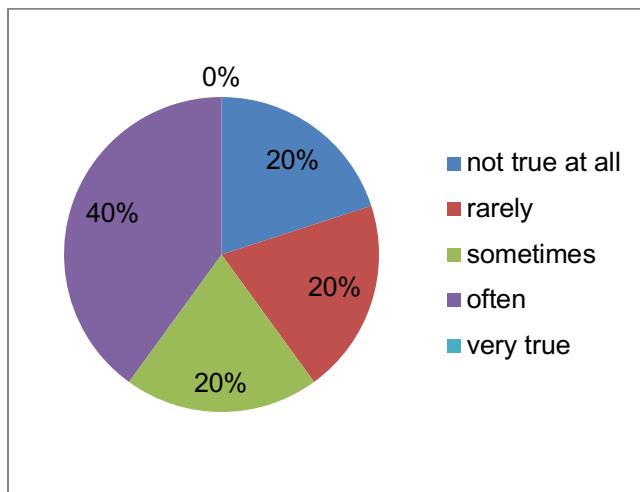
Second, respondents might be reluctant to cooperate with other people fearing those would discover their lack of competence. The participants' attitude toward their performance and its potential effect on cooperating with other people is shown in the graph below.

*Pic. 4.* Sometimes I'm afraid others will discover how much knowledge or ability I really lack



The last, but not the least significant, implication is that ongoing questioning of own effectiveness and reluctance to cooperate with others might stumble the minority CRNA student and the individuals' sustainable development in the selected field. Such individuals might feel their accomplishments are insignificant or that they are not good enough to contribute to the field. This assumption is based on the fact that a considerable number of respondents tend to discount their accomplishments, as it is shown in the graph below.

*Pic. 5.* If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done



Noteworthy, the respondents were less susceptible to IP than it was hypothesized at the beginning of the data collection process. This positive trend can potentially be attributed to the fact that diversity has become an inalienable element of the modern educational environment. Half of the respondents who consented to share relevant information agreed their graduate programs represented their ethnicity, culture, and religion. Such culturally sensitive programs could empower the minority CRNA student to have an adequate assessment of their accomplishments and plan further contributions to their professional communities.

The researcher, however, acknowledges that this study has several limitations that could potentially affect the accuracy of findings. First, the sample size was small to transfer the obtained findings to a larger group of minority CRNA students. Second, the response rate was comparatively small as only 5 out of 7 respondents replied to all survey questions. The low response rate could have potentially affected the accuracy of research findings.

### **Conclusion**

In summary, IP can significantly undermine the minority CRNA students' effectiveness in the anesthesia field due to the internalized feeling of not being good enough or viewing one's success as luck versus the results of hard work and dedication. The existing evidence suggests

that the IP is more prevalent in minority students who face racial disparities resulting in their being underrepresented in different fields, including anesthesia. IP can undermine the minority students' morale and intention to contribute to their professional communities.

This study surveyed a group of minority CRNA students to assess the prevalence of the IP in this population group and its effect on their decision-making. In contrast to the initial hypothesis, IP was less common among the sample size, and the respondents were used to acknowledgment and praise for the amount of personal effort invested in achieving academic or professional successes. However, the detected attitude did not make the participants immune to comparing themselves to other people and treating those people as more intelligent and worth promotion.

Analyzing the collected responses, the study discovered implications of the IP for minority CRNA student. First, minority CRNA students might report an undermined morale caused by the belief they are underperforming. Second, ongoing comparison of own cognitive abilities and performance with the abilities and performance of other people might discourage the minority CRNA student from cooperating with peers in an extended professional network. Finally, the IP might discourage minority CRNA student from leaving their comfort zone and consider promotion even if they might deserve it.

The researcher, however, acknowledges that the study has some limitations, including small sample size and low response rate, which might affect the accuracy of findings and makes it impossible to transfer them to a larger group of nursing students. A thought-provoking finding that requires further verification suggests that the integration of ethnical, cultural, and religious elements in the graduate program makes minority students less susceptible to the IP. However,



further research is needed to gain an in-depth understanding of how these programs should look, and how they might provide equal opportunities for all learners.

### References

- Arleo, E., Wagner-Schuman, M., McGinty, G., Salazar, G., & Mayr, N. (2021). Tackling impostor syndrome: A multidisciplinary approach [Editorial]. *Clinical Imaging*, 74, 170–172. <https://doi.org/10.1016/j.clinimag.2020.12.035>
- Avery-Desmarais, S., Revell, S., & McCurry, M. (2021). A theoretical framework to promote minority PhD and DNP student success in nursing education. *Journal of Professional Nursing*, 37, 1149–1153. <https://doi.org/10.1016/j.profnurs.2021.10.002>
- Baumann, N., Faulk, C., Vanderlan, J., Chen, J., & Bhayani, R. (2020). Small-group discussion sessions on impostor syndrome. *MedEdPortal*. [https://doi.org/10.15766/mep\\_2374-8265.11004](https://doi.org/10.15766/mep_2374-8265.11004)
- Beck, M. F. (2016). Examining doctoral attrition: A self-determination theory approach. *The Nebraska Educator: A Student Led Journal*, 33(3), 5–19. <https://doi.org/https://doi:10.13014/K2JW8BSG>
- Chandra, S., Huebert, C., Crowley, E., & Das, A. (2019). Impostor syndrome: Could it be holding you or your mentees back? *Chest*, 156(1), 26–32. <https://doi.org/10.1016/j.chest.2019.02.325>
- Chang, S., Lee, H., Anderson, C., Lewis, K., Chakraverty, D., & Yates, M. (2022). Intervening on impostor phenomenon: Prospective evaluation of a workshop for health science students using a mixed-method design. *BMC Med Educ*, 22. <https://doi.org/10.1186/s12909-022-03824-7>
- Chrousos, G. P. (2020). Imposter syndrome threatens diversity. *Science*, 367(6479), 749–750. <https://doi.org/10.1126/science.aba8039>

- Clance, P. (1985). *The impostor phenomenon: When success makes you feel like a fake*. Bantam Books.
- Clance, P. R., & Imes, S. A. (1978). The impostor phenomenon in high achieving women: Dynamics and therapeutic intervention. *Psychotherapy: Theory, Research, & Practice*, 15(3), 241–247. <https://doi.org/10.1037/h0086006>
- Deci, E. L., & Ryan, R. M. (2009). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *An International Journal for the Advancement of Psychological Theory*, 11(4), 227–268. [https://doi.org/10.1207/S15327965PLI1104\\_01](https://doi.org/10.1207/S15327965PLI1104_01)
- Gold, J., Bentzley, J., Franciscus, A., Forte, C., & De Golia, S. (2020). An intervention in social connection: Medical student reflection groups. *Academic Psychiatry*. <https://doi.org/10.1007/s40596-019-01058-2>
- Holliday, A., Gheihman, G., Cooper, C., Sullivan, A., Ohyama, H., Leaf, D., & Leaf, R. (2019). High prevalence of imposterism among female harvard medical and dental students. *Journal of General Internal Medicine*, 35(8), 2499–3501. <https://doi.org/10.1007/s11606-019-05441-5>
- Levant, B., Villwock, J., & Mansard, A. (2020). Imposterism in third-year medical students: an item analysis using the Clance imposter phenomenon scale. *Perspective Med Educ*, 9, 83–91. <https://doi.org/10.1007/s40037-020-00562-8>
- Manthey, M. (n.d.). *What is a nursing salon?* <https://mariesnursingsalon.wordpress.com/what-is-a-nursing-salon/>
- McMannon, H. T. (2022). Tricking the imposter: Struggles and successes with imposter syndrome. *Nurse Anesthesiology*.

<https://doi.org/https://nurseanesthesiology.aana.com/tricking-the-imposter-struggles-and-successes-with-imposter-syndrome>

Mhyre, J., Jackson, J., Lucero, J., & Goree, J. (2022). Workforce solutions to address health disparities. *Current Opinion Anesthesiology*, *35*, 317–325.

<https://doi.org/10.1097/ACO.0000000000001147>

Neufeld, A., Babenko, O., Lai, H., Svrcek, C., & Malin, G. (2022). Why do we feel like intellectual frauds? A self-determination theory perspective on the imposter phenomenon in medical students. *Teaching and Learning in Medicine*.

<https://doi.org/10.1080/10401334.2022.2056741>

Ogunyemi, D., Lee, T., Ma, M., Osuma, A., Eghbali, M., & Bouri, N. (2022). Improving wellness: Defeating imposter syndrome in medical education using an interactive reflective workshop. *PLoS ONE*, *17*(8). <https://doi.org/10.1371/journal.pone.0272496>

Phillips, J., Julion, W., Dallas, C., Alexander, C., Burnett, G., Smith, C., & Maryland, M. (2022). Pursuing a doctorate in nursing: Implications for underrepresented minority nurses. *Journal of Professional Nursing*, *39*, 117–121.

<https://doi.org/10.1016/j.profnurs.2022.01.008>

Rivera, N., Feldman, E., Augustin, D., Caceres, W., Gans, H., & Blankenburg, R. (2021). Do I belong here? Confronting imposter syndrome at an individual, peer, and institutional level in health professionals. *MedEdPORTAL*. [https://doi.org/10.15766/mep\\_2374-8265.11166](https://doi.org/10.15766/mep_2374-8265.11166)

Sinkfield-Morey, T. (2019). The nursing salon experience: A salon for nurses of color. *Creative Nursing*, *25*(4), 308–310. <https://doi.org/https://doi.org/10.1891/1078-4535.25.4.308>

Vaughn, A., Taasobshirazi, G., & Johnson, M. (2019). Impostor phenomenon and motivation:

Women in higher education. *Studies in Higher Education*.

<https://doi.org/10.1080.03075079.2019.1568976>

## Appendix A

### Gantt Chart

<b>TASK</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>
<b>PICOT</b>	<b>X</b>							
<b>Proposal Draft 1</b>		<b>X</b>						
<b>Proposal Draft 2</b>		<b>X</b>						
<b>Proposal Draft 3</b>			<b>X</b>					
<b>Informal Project Presentation</b>				<b>X</b>	<b>X</b>			
<b>IRB Approval</b>						<b>X</b>		
<b>Final DNP Project</b>						<b>X</b>	<b>X</b>	<b>X</b>

## Appendix B

### SWOT Analysis

<p><b>Strengths:</b></p> <ul style="list-style-type: none"> <li>● Increase the participants ability to identify Impostor Phenomenon, and its impact</li> <li>● Increase the sense of belongingness and support for underrepresented minority groups</li> <li>● The ability to conduct a virtual small group session that may increase availability of participants and remove the need to find a physical location</li> </ul>	<p><b>Weaknesses:</b></p> <ul style="list-style-type: none"> <li>● Lack of transparency and openness from participants</li> <li>● Limited research on Impostor Phenomenon and relation to CRNA students</li> <li>● Inability to have representatives that meet the diverse needs of all participants</li> </ul>
<p><b>Opportunities:</b></p> <ul style="list-style-type: none"> <li>● The ability for academic institutions to become more aware of barriers underrepresented minority groups face to ensure they receive adequate support</li> <li>● Ability for CRNA students to networks and collaborate with future colleagues</li> </ul>	<p><b>Threats:</b></p> <ul style="list-style-type: none"> <li>● Not enough participants</li> <li>● Researcher's lack of knowledge facilitating small group discussions</li> <li>● Participants lacking empathy and mutual respect for an individual's perceived feelings</li> <li>● Participant attrition</li> <li>● Worsening survey results</li> </ul>

## Appendix C

### Clance IP Scale

For each question, please circle the number that best indicates how true the statement is of you. It is best to give the first response that enters your mind rather than dwelling on each statement and thinking about it over and over.

**1. I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**2. I can give the impression that I'm more competent than I really am.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**3. I avoid evaluations if possible and have a dread of others evaluating me.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**4. When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**5. I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**6. I'm afraid people important to me may find out that I'm not as capable as they think I am.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**7. I tend to remember the incidents in which I have not done my best more than those times I have done my best.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**8. I rarely do a project or task as well as I'd like to do it.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**9. Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**10. It's hard for me to accept compliments or praise about my intelligence or accomplishments.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**11. At times, I feel my success has been due to some kind of luck.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)

**12. I'm disappointed at times in my present accomplishments and think I should have accomplished much more.**

1            2            3            4            5

(not at all true) (rarely) (sometimes) (often) (very true)



**13. Sometimes I'm afraid others will discover how much knowledge or ability I really lack.**

1            2            3            4            5  
 (not at all true) (rarely) (sometimes) (often) (very true)

**14. I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt.**

1            2            3            4            5  
 (not at all true) (rarely) (sometimes) (often) (very true)

**15. When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.**

1            2            3            4            5  
 (not at all true) (rarely) (sometimes) (often) (very true)

**16. If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done.**

1            2            3            4            5  
 (not at all true) (rarely) (sometimes) (often) (very true)

**17. I often compare my ability to those around me and think they may be more intelligent than I am.**

1            2            3            4            5  
 (not at all true) (rarely) (sometimes) (often) (very true)

**18. I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well.**

1            2            3            4            5  
 (not at all true) (rarely) (sometimes) (often) (very true)

**19. If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact.**

1            2            3            4            5  
 (not at all true) (rarely) (sometimes) (often) (very true)

**20. I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.**

1            2            3            4            5  
 (not at all true) (rarely) (sometimes) (often) (very true)

### Scoring the Impostor Test

The Impostor Test was developed to help individuals determine whether or not they have IP characteristics and, if so, to what extent they are suffering.

After taking the Impostor Test, add together the numbers of the responses to each statement. If the total score is 40 or less, the respondent has few Impostor characteristics; if the score is between 41 and 60, the respondent has moderate IP experiences; a score between 61 and 80 means the respondent frequently has Impostor feelings; and a score higher than 80 means the respondent often has intense IP experiences. The higher the score, the more frequently and seriously the Impostor Phenomenon interferes in a person's life. Note. From *The Impostor Phenomenon: When Success Makes You Feel Like A Fake* (pp. 20-22), by P.R. Clance, 1985, Toronto: Bantam Books. Copyright 1985 by Pauline Rose Clance, Ph.D., ABPP. Reprinted by permission. Do not reproduce without permission from Pauline Rose Clance, drpaulinerose@comcast.net, www.paulineroseclance.com.

## Appendix D

## Literature Review Matrix

Citation	Research Design & Level of Evidence	Population/Sample Size (n=x)	Methods/Intervention	Instruments/Data Collection	Results
(Avery-Desmarais et al., 2021)	Theoretical framework/Case study, Level V	N/A	N/A	Minority Doctoral Student success framework	Minority student stressors is a systems problem and MDSS gives the framework for faculty and peer support
(Baumann et al., 2020)	Cohort, Level IV	Internal medicine residents, n=21	30-45min psychologist led interactive discussion	Postsession survey	81% felt small group session was beneficial
(Beck, M. F., 2016)	Systematic Review, Level IV	N/A	N/A	N/A	Correlation between SDT and IP and doctoral attrition rates
(Chandra et al., 2019)	Systematic Review, Level III	N/A	N/A	N/A	Discussed the prevalence of IP
(Chang et al., 2022)	Prospective mixed-method design, Level IV	College students in a 10-week summer research experience program, n=51	Interactive IP workshop	Reports of experience, pre- and post-survey, and growth mindset surveys	Students found the interactive IP workshop to be beneficial
(Chrousos, G., 2020)	Expert opinion, Level V	N/A	N/A	N/A	Impostor phenomenon threatens diversity. Shed light on IP by peer and faculty open discussion to reduce its influence on diversifying educational settings

(Gold et al., 2020)	Cohort, Level IV	First and second year medical students, n=30	Biweekly support groups over 6 months; high attrition	Emotional Self-Awareness Scale; modified Interpersonal Fulfillment Index; Revised UCLA Loneliness Scale	Students benefited from support groups and connectedness
(Levant et al., 2020)	Cross-sectional, Level IV	Third year medical students, n=127	Preclinical to clinical phase of training	Clance Impostor Phenomenon Scale; Burnout assessment	Third year related more with items related to fear of failure, hesistance to share recognition before it is announced, and believing themselves less capable
(Mhyre et al., 2022)	Expert Review, Level V	N/A	N/A	N/A	Barriers to increase diversity in medicine to address health disparities
(Neufield et al., 2022)	Cross-sectional, Level IV	Medical student from 3 Canadian institutions, n=1450	The effects of Self-Determination Theory in relation to Impostor Syndrome	Clance IP scale; General Causality Orientation Scale; Comprehensive Relative Autonomy Index; Basic Psychological Need Satisfaction at Work Scale	Students who are self-determined and basic needs are more supported in their medical program had less symptoms of IP
(Ogunyemi et al., 2022)	Retrospective cross-sectional, Level IV	Medical education cohorts, n=198	Medical education cohort and interactive workshop	Young Impostor Syndrome Scale	Interactive workshop was beneficial in increasing awareness and knowledge regarding IP in faculty and students

(Phillips et al., 2022)	Expert Opinion, Level V	N/A	N/A	Doctoral Readiness Inventory (DRI)	Fostering mentorship to support URM and utilizing DRI to determine readiness to pursue doctoral degree
(Rivera et al., 2021)	Cross-sectional, Level IV	3 Academic conferences, n=92	N/A	Pre- and postsession survey	Workshops effective means to discuss strategies to combat IP
(Vaughn et al., 2019)	Cross-sectional, Level IV	Academic women, n=1326	N/A	Multiple online surveys	High IP levels in women correlate with success and motivation

## Appendix E

### Impostor Syndrome Subtypes

Subtype	Characteristics
Perfectionist	Perceives competence as 100% perfection. Anything short of this is considered failure. This individual always focuses on how something could have been done better.
Natural Genius	Measures competence by how easily the achievement came to him/her. Hard work and perseverance are considered negative traits because this individual feels that success should have come more naturally to them.
Super-person	Perceives competence as the ability to juggle numerous roles and responsibilities simultaneously. Falling even slightly short in one role (parent, caregiver, researcher, etc.) constitutes overall failure even in the context of major successes.
Expert	Measures competence by the volume of knowledge or skill. This individual fears being exposed as inexperienced because of lack of knowledge.
Soloist	Perceives competence only if an achievement was obtained completely on their own without the aid of additional resources. Asking for help is considered a sign of failure.