



The Imposter Phenomenon and Its Relationship Between Anxiety and Students

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## Submission of Thesis and Dissertation

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**Abstract**

The imposter phenomenon is defined as the belief that one's accomplishments were a result of either luck, the hard work of others or manipulating others. The main research aim of the current study is to investigate the relationship between the imposter phenomenon and anxiety within Irish students. The study also investigated the gender biases in these two issues and how gender moderates between them. A questionnaire was filled out by participants (n= 80), comprised of demographic questions, the Clance Imposter Phenomenon Scale, and the Beck Anxiety Indicator. The results of the study showed that females are more likely than males to score highly in both the imposter phenomenon and anxiety, respectively. The results also found that there is a significant positive correlation between the imposter phenomenon and anxiety. Lastly, the results showed that males were more likely than females to experience a correlation between the imposter phenomenon and anxiety. The results of the current study indicate the importance of education on both the imposter phenomenon and anxiety in tandem with each other within Irish colleges.

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### Introduction

Clance & Imes (1978), first identified an imposter phenomenon in their study of successful female college students and professionals. This imposter phenomenon can also otherwise be identified as imposterism (Legassie et al., 2008), the imposter syndrome, and is also known as perceived fraudulence (Kolligian & Sternberg, 1991). The imposter phenomenon can be described as the belief that one's accomplishments were a result of either pure luck, the hard work of others, or the manipulation of other's impressions of your success, rather than directly resulting from one's ability to complete accomplishments (Langford & Clance, 1993). Clance (1985) also explains that the participants who are presenting with the imposter phenomenon tend to worry that their peers will discover their fraudulence and that they will be "found out", these "imposters" also show that as they achieve more success, the more they feel like "fakes". From previous studies, participants with high levels of the imposter phenomenon have pointed out that they have the ability to understand how their accomplishments are seen from other people's perspectives, however this awareness does not affect their own internal ideas of fraudulence and the thought process pertaining to the fact that they believe they do not deserve their successes and accolades (Clance, 1985; Sakulku & Alexander, 2011). There are a number of clinical symptoms that individuals who express the imposter phenomenon tend to experience. These frequently reported symptoms include; generalized anxiety, depressive feelings, a lacking in self-confidence, and frustration in relation to not being able to meet self-imposed standards (Clance & Irnes, 1978). Those suffering from the imposter phenomenon have also described experiencing feelings of second guessing, perfectionism, and feeling a hesitation regarding sharing their opinions or standing up for themselves (Clark et al., 2014).

The Imposter Phenomenon and the effect it has on students has been studied in depth (Kolligan & Sternberg, 1991; Chapman, 2015; Cozzarelli & Major, 1990), however the

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majority of these studies were completed in America. Cozzarelli & Major (1990) found that students who scored higher on an imposter phenomenon test, were less confident in their knowledge and more anxious than the “non-imposters” who scored lower on the imposter phenomenon test, when faced with an exam situation, despite the “imposters” concerns not being concurrent with their test results. Specific student populations that have been subject to a number of studies on the imposter phenomenon are both medical students and medical residents (Legassie et al., 2008; Henning et al., 1998; Oriel et al., 2004; Villwock et al., 2016). Rosenstein et al. (2020) also identified a correlation between the imposter phenomenon and computer science students.

The imposter phenomenon can also be seen within the faculty of higher education institutions. There have been a number of studies that have investigated the prevalence of the imposter phenomenon in certain research institutions, private universities, and in community colleges (Brems, 1994; Dahlvig, 2013; Hutchins, 2015; Long et al., 2000). Hutchins (2015), states that there may be a concerning heightening of imposter phenomenon traits in higher education faculty members, that could be due to the ‘publish or perish’ ideals that are within the current academic culture. This culture includes vague targets, inconsistent support, and the high competitiveness between researchers in relation to funding. For example, these ideas may hinder the ability of faculty to perform their job. Brems et al. (1994) found that lecturer’s levels of the imposter phenomenon negatively affected how they encourage their students to participate in lectures, which could possibly negatively affect student’s proficiency in that subject. Non-faculty staff of colleges have also been studied in relation to the imposter phenomenon (Crouch et al., 1991; Dahlvig, 2013; Long, et al., 2000), a specific subset of higher education staff that has been studied in relation to the imposter phenomenon are librarians (Clark et al., 2014; Faulkner, 2015; Gordon, 2003). Clark et al. (2014) explains how 12.5% of the academic librarians in their study have significantly high imposter scores.

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As one of the main job descriptions of academic librarians is to encourage and help students this unsureness may deter them from studying and realising their potential.

The imposter phenomenon has a tendency to affect female populations in higher quantities than it affects male populations. A recent study of medical students found that 25% of male participants suffered from imposter phenomenon, which is in contrast to the 50% of female participants suffering from the imposter phenomenon (Villwock et al., 2016). Nimmo (2019) has stated that this gender difference could be a potential barrier for achieving gender equality in both academic and other professional settings. Chrousos & Mentis (2020) discuss how the imposter phenomenon's effect of a constant lack of self-confidence and the downplaying of one's accomplishments could be a factor that explains the higher drop-out rates of women from the predominantly male dominated fields of science, technology, engineering, and mathematics.

Previous research has also found that there is also a perceived gender bias within people suffering from anxiety. This gender bias is shown in the American National Comorbidity survey (Harvard Medical School, 2007), their results highlighted that there were double the amount of females suffering with anxiety in comparison to males. Budhwani et al. (2015) found that despite other factors that may encourage anxiety, such as the inclusion of an ethnic minority, females were still more likely than males to experience Generalised Anxiety Disorder within their lifetime.

There has been a link between anxiety, perfectionism, and self-consciousness, (Saboonchi & Lundh, 1997). Thompson et al. (2000) found that when faced with acute stress, imposters reported higher levels of anxiety than non-imposters. Alrayyes et al. (2020) also identified this link between anxiety and the imposter phenomenon. It is also prevalent in the literature that generalised anxiety is a symptom of the imposter phenomenon (Clance & Irnes,



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1978). A correlation between those presenting with imposter phenomenon and people experiencing burnout has also been studied (Alrayeres et al., 2020; Legassie et al., 2008).

Clance (1985) proposed the idea that there was a high possibility that imposters will never possess the ability to view their accomplishments as valid. However, the popular opinion on the topic subsequently shifted and there are two main aspects to the interventions currently implemented to combat the imposter phenomenon. These aspects include both communication and education (Clance, 1985; Studdard, 2002; Mount & Tardanico, 2014).

A common idea among studies is the discussion of self-doubt and fraudulent thoughts in group sessions (Clance 1985; Clance et al., 1995; Jackson & Heath, 2014; Mount & Tardanico, 2014). Clance & Imes (1978) suggested that through hearing other imposter's testimonies, that this may lessen the effects of the imposter phenomenon. Clance et al. (1995) recommend group therapy situations where imposters can hear others' testimonies to illustrate that imposters are not isolated in their thoughts and that learning about other people experience similar self-doubt can have a positive effect. Harvey & Katz (1985) suggested there are benefits for imposters to list their fraudulent thoughts, learning to accept compliments and practicing standing up for themselves. Young (2011) suggests the "fake it till you make it" method to combat imposterism. It is also suggested that lecturers educated themselves on the topic of the imposter phenomenon while also imposing more in depth mentoring relationships with their students, to allow them to aid the overcoming of their students' negative imposter thoughts (Studdard, 2002).

Though there is no "gold standard" for testing the imposter phenomenon currently (Mak et al., 2019), although there are two frequently used tests. The first test to be developed for the imposter phenomenon was by Harvey (1982), the Harvey Impostor Scale. This test includes a 14 item scale that was developed for both graduates and undergraduate students. The Clance Impostor Phenomenon Scale (see Appendix A) was then developed (Clance,

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1985). The Clance Impostor Phenomenon Scale includes a 20 item scale that was developed to address the gaps in the research that the Harvey Impostor Scale had left, in relation to the participant holding a fear of evaluation and a feeling of lacking in capability. The Clance Impostor Phenomenon Scale is currently the most commonly used measure for the imposter phenomenon (Mak et al., 2019). A frequently used measure of anxiety is the Beck Anxiety Inventory (Beck et al. 1998) (see Appendix B) which is a 21 item scale including a 4 point fixed Likert scale, to measure levels of anxiety within the participants.

In conclusion, there is significant evidence to suggest that there is a gender bias with female participants generally who scoring higher than their male counterparts in tests of the imposter phenomenon (Villwock et al., 2016). There is also evidence to suggest that there is a gender bias within anxiety, with females being more likely than males to score high in measures of anxiety (Budhwani et al., 2015; Harvard Medical School, 2007). These findings, in conjunction with (Chrousos & Mentis, 2020), who concluded that the high scores of these populations may lead to higher dropout rates in the fields of science, technology, engineering, and mathematics, leaves it reasonable to believe that there will be higher levels of imposter syndrome within these subsections of the student population, however the majority of studies performed on this topic in student populations are generally American. There is also a suggested link between a person's levels of anxiety and their levels of the imposter syndrome (Thompson et al., 2000; Alrayyes et al., 2020), this link may be moderated by gender, considering that there is a gender bias within both the imposter phenomenon and anxiety (Budhwani et al., 2015; Harvard Medical School, 2007; Villwock et al., 2016).

### **The Current Study**

Though the imposter phenomenon has been studied in depth in relation to the effect that it has on students (Kolligan & Sternberg, 1991; Chapman, 2015; Cozzarelli & Major, 1990) the majority of these studies have been performed in America, the present study will

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investigate this relationship within students who were born in Ireland. The current study is based on the belief that there is a significant relationship between anxiety and the imposter syndrome (Thompson et al., 2000; Alrayyes et al., 2020), although there is a gap in the research with how Thompson et al. (2000) only tested for anxiety caused by acute stress, instead of generalised anxiety. It is also to be believed that there is a bias towards gender (Villwock et al., 2016; Nimmo, 2019) within the imposter syndrome. These beliefs in conjunction with the studies that state that the imposter phenomenon has a negative effect on students in third level education (Kolligan & Sternberg, 1991; Chapman, 2015; Cozzarelli & Major, 1990), are the reasoning for the current study, which aims to identify the relationship between the imposter phenomenon and anxiety within a student population. There is reason to suggest that there is a gender bias with anxiety as well as the imposter phenomenon, Harvard Medical School, (2007) found that women were twice as likely as men to show signs of Generalised Anxiety Disorder. This shows that women are more likely than men to score higher on both imposter phenomenon tests and tests of anxiety (Budhwani et al., 2015; Villwock et al., 2016). These gender biases have influenced the research aims of the current study with the question as to whether gender may moderate between the imposter phenomenon and anxiety.

The main research aim of the present study is to identify the relationship between the imposter phenomenon and anxiety in a population of Irish students. The current study will also aim to investigate the gender biases that are included in both the imposter phenomenon and anxiety and how this bias effects the relationship between the imposter phenomenon and anxiety.

The first research question of the current study is: Is there a relationship between gender and imposter phenomenon and anxiety respectively? The corresponding hypothesis

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for this research question is that female participants will score higher on both the imposter phenomenon and anxiety than male participants.

The secondary research question of the current study is: What is the relationship between the imposter phenomenon and anxiety in students? The corresponding hypothesis for this research question is that there will be a significant, positive correlation between the imposter phenomenon and anxiety.

The tertiary research question of the current study is: How does gender affect levels of the imposter phenomenon and anxiety? The corresponding hypothesis for this research question is that the relationship between imposter syndrome scores and anxiety scores is moderated by gender.

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### Methods

#### Participants

The participants of this study were students studying an undergraduate or post graduate degree that were born in Ireland. Of the 80 participants; 24 were male (30%), 55 were female (68.8%), and 1 participant identified as Non-Binary (1.2%). To be included in the study, for ethical reasons the participants needed to be over the age of 18 ( $M=24.21$ ,  $SD = 8.32$ ), born in Ireland, and currently studying an undergraduate or post graduate degree in Ireland. Participants were recruited online using a convenience sampling method via several social medias. Participants were required to assure that informed consent was given upon completion of the survey.

#### Design

The present study has a quantitative, cross sectional design. Within the first hypothesis an independent samples design was used, in this model the independent variable was the participant's gender and the two dependent variables of the hypothesis were the participant's levels of anxiety on the Beck Anxiety Inventory (see Appendix B) and the participant's imposter phenomenon scores from the Clance Imposter Phenomenon scale (see Appendix A). Within the second hypothesis a correlation analysis was preformed between two dependent variables, imposter phenomenon scores from the Clance Imposter Phenomenon Scale and levels of anxiety on the Beck Anxiety Indicator. The last hypothesis of the current study was investigated using a moderation analysis. Within this analysis the predictor variable was the participant's anxiety scores on the Beck Anxiety Indicator, the moderator variable in the analysis being the gender of the participants, and the outcome variable was the participant's imposter phenomenon scores from the Clance Imposter Phenomenon Scale.

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### Measures

The survey that is used in the current study included several demographic questions and two different scales. The survey was compiled using Google Forms, an online survey platform.

**Demographics** - The participants were asked to answer several demographic questions including indicating their age, if they are over 18, their gender, whether they are currently enrolled in either a undergraduate or a postgraduate degree, and if they were born in Ireland (see Appendix D).

**The Clance Imposter Phenomenon Scale** - The participants then completed The Clance Imposter Phenomenon Scale (Mak et al., 2019) (see Appendix A), a questionnaire that measures the levels of the imposter phenomenon in participants, this questionnaire includes a 20 item scale that includes a 5 point Likert scale. According to The Clance Imposter Phenomenon Scale, if a participant scores 40 or lower that they have “few imposter characteristics”, with a score of 41 to 60 the participant has “moderate imposter phenomenon experiences”, a score of 61 to 80 indicates “frequent imposter feelings”, and finally if a participant scores higher than 80 that means that they “often have intense imposter phenomenon experiences”. The Clance Imposter Phenomenon Scale is the current most common measure used in studies on the imposter phenomenon (Mak et al., 2019). Within the current sample the Cronbach’s Alpha was ( $\alpha = .93$ ), which indicates a high level of reliability.

**Beck Anxiety Inventory** - In the current study, the participants were asked to fill out two questionnaires, the first of which was the Beck Anxiety Inventory (Beck et al. 1998) (see Appendix B) which is a 21 item scale including a 4 point fixed Likert scale, to measure levels of anxiety within the participants. In accordance with the Beck Anxiety Inventory, a score of 0 to 21 is deemed “low anxiety”, a score of 22 to 35 is referred to as “moderate anxiety”, and a score of 36 plus is “potentially concerning levels of anxiety” (Beck et al. 1998). Kabacoff et

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al., (1997), found that the Beck Anxiety Inventory has good psychometric properties. Within the current sample the Cronbach's Alpha was ( $\alpha = .93$ ) indicating a high level of reliability.

### **Procedure**

The data for the current study was collected using a Google Forms survey. The participants were approached online to fill out the online survey via various social medias. The nature of the study was presented to them in comprehensive detail in the participation leaflet ( see Appendix C). The participants of the current study were informed before they entered and completed the survey that tampering from an outside source with the use of the internet in data collection is possible however not very likely. The survey within the current study will also not include the collection of names or defining features, other than the gender of participants, the age of the participants, the confirmation that a participant was born in Ireland, and the fact that the participant is a student that is currently enrolled in either an undergraduate degree or a postgraduate degree. It is also stated to the participants that they have the right to withdraw their survey at any point between the start and finishing the survey. The discussion of the topics of both general anxiety and the imposter phenomenon are stated before the online survey begins, as these two topics may be psychologically distressing, both respectively and when discussed together. Also, the participants are informed that once their survey is submitted, it is impossible for the participants of the study to un-submit and withdraw the information that they have disclosed.

The survey consists of demographic questions regarding the participant's gender, their nationality, whether they were currently an undergraduate or postgraduate student, and their age to ensure that they are over the age of 18. Then the participants filled out the Beck Anxiety Inventory (see Appendix B) which is a 21 item scale including a 4 point fixed Likert scale, the participants then completed The Clance Imposter Phenomenon scale (see Appendix A) which includes a 20 item scale that includes a 5 point Likert scale. The participants were

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then asked if they wish to complete the survey when finished. The online survey takes 5 – 10 minutes to complete.



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**Results****Descriptive Statistics**

The sample consisted of 80 college students in Ireland, of the participants 24 were male (30%), 55 were female (68.8%), and 1 identified as non-binary (1.2%). The descriptive statistics for the continuous variables are shown in Table 1.

Table 1

*Descriptive statistics for imposter phenomenon scores, anxiety scores and age*

Variable	<i>M</i> [95% CI]	<i>SD</i>	Range
Age	24.21 [22.36, 26.06]	8.32	18-53
Imposter Phenomenon	23.29 [20.25, 26.32]	13.64	0-53
Anxiety	72.96 [69.58, 76.35]	15.22	32-100

**Inferential Statistics**

Preliminary analysis that was preformed to indicate normality within the data set, were not normally distributed. Due to this non-parametric tests were performed where needed.

A non- parametric Mann Whitney U Test was conducted instead of an Independent Samples T-Test to compare levels of the imposter phenomenon between males and females. There was a medium effect size between males and females ( $r = .35$ ). There was a significant difference in the imposter phenomenon levels of males ( $Md = 66.5$ ,  $n = 24$ ) and females ( $Md = 78$ ,  $n = 55$ ),  $U = 952.5$ ,  $z = 3.12$ ,  $p = .002$ . The results of this analysis indicate that females are likely to have higher scores than males in regard to their imposter phenomenon scores.

A subsequent non- parametric Mann Whitney U Test was conducted instead of an Independent Samples T-Test Mann Whitney U Test to compare the levels of anxiety between

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males and females. There was a small effect size between males and females ( $r = .25$ ). There was a significant difference in the anxiety levels of males ( $Md = 15, n = 24$ ) and females ( $Md = 25, n = 55$ ),  $U = 871, z = 2.25, p = .024$ . The results of this analysis indicate that females are likely to have higher scores than males in regard to their levels of anxiety.

The relationship between the imposter phenomenon and anxiety was investigated using a non-parametric Spearman's Rank Order correlation coefficient in place of a Pearson's Correlation Coefficient. There was a medium, positive correlation between the two variables ( $r_s = .45, n = 80, p < .001$ ). The results of this correlation analysis indicate that higher levels of the imposter phenomenon are associated with higher levels of anxiety.

A moderation analysis was then performed to determine whether the relationship between anxiety scores and imposter phenomenon scores were moderated by gender. Both gender ( $p = .021$ ) and anxiety scores ( $p < .001$ ) were shown to predict levels of the imposter phenomenon. Gender moderates the relationship between anxiety scores and imposter phenomenon scores ( $r = -.55, p = .024$ ). There is a positive relationship between anxiety scores and the imposter phenomenon scores for both males ( $r = .82, p < .001$ ) and females ( $r = .28, p = .040$ ). The results of this moderation analysis indicate that male participants have greater relationship between higher levels of the imposter phenomenon and higher levels of anxiety.

A post hoc Spearman's rank order correlation was performed to investigate the relationship between the imposter phenomenon and anxiety in males and females separately. There was a large, positive correlation between the two variables in males ( $r_s = .73, n = 24, p < .001$ ). There was a medium, positive correlation between the two variables in females ( $r_s = .31, n = 55, p = .022$ ). The results of this correlation indicate that within males there is a larger correlation between high levels of anxiety and high levels of imposter phenomenon than there is in females.

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### Discussion

The relationship with anxiety and the imposter phenomenon is well established in the literature (Alrayyes et al., 2020; Thompson et al., 2000). It is also evident through previous research that there is a significant gender bias within both the imposter phenomenon and anxiety respectively (Budhwani et al., 2015; Villwock et al., 2016). These relationships are important topics to be discussed and rectified as they are prevalent in the student population, and thus may be contributing to the dropout rates of women in male dominated fields of study such as science, technology, engineering, and mathematics (Chrousos & Mentis, 2020). It has also been theorised that the imposter phenomenon has a negative effect on the performance of students (Kolligan & Sternberg, 1991; Chapman, 2015; Cozzarelli & Major, 1990). The main research question of the current study was to investigate the relationship between gender, the imposter phenomenon and anxiety within Irish students. Influenced by the prior research surrounding this topic, three hypotheses were formed to help define the research aims of the study.

The first hypothesis of the current study was that female participants would score higher than their male counterparts on both the imposter phenomenon scores and their anxiety scores. To calculate this hypothesis, two independent samples tests were performed. The results of these tests showed that females were significantly more likely to score higher than males on both the imposter phenomenon and anxiety, the imposter phenomenon having a medium effect size and anxiety having a small effect size. These results support the previous literature that stated that there is a gender bias within these two issues. Both the imposter syndrome and anxiety (Budhwani et al., 2015; Harvard Medical School, 2007; Villwock et al., 2016) are known to affect females at higher rates than males.

It was then hypothesised that there will be a positive correlation between the imposter phenomenon and anxiety in a student population. A correlation analysis was conducted to

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explore the relationship between the participant's imposter phenomenon scores and anxiety scores. The results of the current study are in support of this hypothesis as they show that there is a significant positive correlation between imposter phenomenon scores and anxiety levels, these results indicate that with higher levels of the imposter phenomenon a person is likely to also experience higher levels of anxiety. These results are supported by the literature surrounding the topic. Anxiety is often seen as a symptom of the imposter phenomenon (Clance & Irnes, 1978), and the link between the imposter phenomenon and anxiety has been discovered and explored by different studies (Thompson et al., 2000; Alrayyes et al., 2020). However, as the current study was cross-sectional in nature, with the present dataset a causality cannot be inferred within this relationship.

The last hypothesis offered was that the relationship between imposter syndrome scores and anxiety scores would be moderated by the gender of the participants. A moderation analysis was performed to investigate this relationship. The results of this analysis explains how in both males and females that there is a positive significant relationship between higher levels of anxiety and higher levels of the imposter phenomenon, however it was also found that male participants had higher levels of significance for this relationship. To back up this hypothesis, a post hoc correlation was performed to investigate the relationship between the imposter phenomenon and anxiety in males and females separately. The results of this correlation shows that there is a larger more significant relationship between levels of anxiety and the imposter phenomenon in males. These findings are interesting as they show that even though females are more likely than males to face both anxiety and the imposter phenomenon, if a male has high levels of anxiety, they are more likely than females with high levels of anxiety to experience high levels of the imposter phenomenon and vice-versa. These results further expose the idea that there is a significant link between the imposter phenomenon and anxiety, however while it does not counteract the

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findings that females generally score higher than men for both anxiety and the imposter phenomenon (Budhwani et al., 2015; Villwock et al., 2016), it raises an interesting point into the experience of males who have high levels of anxiety and how that may make them more perceptible to experiencing the imposter phenomenon and vice-versa.

The findings within the present study have implications for both future research and the future development of student assistance within colleges in Ireland. The results reinforce further the previous statements that both the imposter phenomenon and anxiety are prevalent in student populations, they also highlight interesting gender biases between scores on the Clance Imposter Phenomenon Scale (see Appendix A) and levels of anxiety on the Beck Anxiety Indicator (see Appendix B).

### **Limitations and Strengths**

A major strength of the current study is that while the relationship between gender and the imposter phenomenon and anxiety have been studied respectively (Budhwani et al., 2015; Harvard Medical School, 2007; Villwock et al., 2016), there is no predominant research that investigates how gender may be moderator between the two. Another strength of the present study was how the measures that were used to calculate the imposter phenomenon and anxiety are the most commonly used scales for their topics (Beck et al., 1998; Clance, 1985; Mak et al., 2019). The majority of the research on the imposter phenomenon alone and in relation to its relationship with both gender and levels of anxiety, have generally been based in America with, to the researcher's knowledge, no studies performed on the topic specifically within an Irish population. Though these factors strengthen the impact of the present study, there are a number of limitations that are to be considered. The first limitation of the current study is that as it is a cross-sectional design no causality can be inferred. In further research it may be needed to examine the relationship between anxiety levels and the imposter phenomenon within a longitudinal research setting.

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As the current study was performed during the global pandemic, this had the effect of reducing the number of participants that could be reached due to the inability to approach possible participants in person. There was also a high discrepancy between males and females with a higher percentage of females performing the survey, further research on the gender bias should employ a database of half males and half females.

### **Implications**

The results of the current study implicate many things for further research and for the future methods employed by Irish college institutions in support of students. Though the majority of imposter phenomenon studies are performed in America, specifically those that investigate its appearance in student populations, it is shown through the results of the current study that within a population of Irish students, both male and female participants average at frequently experiencing feelings of the imposter phenomenon (see Appendix A). These results express the urgency to which change is needed within Irish colleges to help combat these feelings of imposterism in students. It has been stated that the main belief of researchers is that the only way to combat these feelings of the imposter phenomenon is to educate the students and the faculty on the matter (Clance, 1985; Studdard, 2002; Mount & Tardanico, 2014). This may be done using a group session with a class, as suggested by (Clance 1985; Clance et al., 1995; Jackson & Heath, 2014; Mount & Tardanico, 2014) this group session can help students suffering from the imposter phenomenon by hearing other's testimonies to help convince them that they are not alone in these beliefs of fraudulence, generalized anxiety, depressive feelings, lacking in self-confidence, and frustration in relation to not being able to meet self-imposed standards. This can also be said for the levels of anxiety that were shown in the results, specifically female students from the current study experience on average moderate anxiety, despite being in contrast to the male's average of low anxiety according to the Beck Anxiety Indicator (see Appendix B). These results show that there

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should be more efforts to curb the spread of anxiety in colleges in Ireland, with more access to mental health services. The relationship between anxiety and the imposter phenomenon has also, to the researcher's knowledge, not been investigated in an Irish student population. As the results indicate that there is a positive relationship between the imposter phenomenon and anxiety, it is evident that it is important for Irish colleges to combat these issues in tandem with each other. Further research into whether causality can be inferred from this relationship is needed to calculate whether one is a symptom of the other. The results of the last hypothesis implicate multiple issues for further consideration, firstly this moderation between high levels of the imposter phenomenon and high levels of anxiety in males needs further study to replicate these results, as high levels of both the imposter phenomenon and anxiety are usually biased towards females (Budhwani et al., 2015; Harvard Medical School, 2007; Villwock et al., 2016). There is also consideration to be given to the types and levels of student supports that are implemented in third level institutions in regard to the male students that experience either high levels of anxiety or high levels of the imposter phenomenon as they are more likely to be grouped together. This is important considering the gender bias towards females experiencing higher levels than men of both the imposter phenomenon and also anxiety which may encourage colleges to overlook their male students that are suffering from these conditions.

### **Conclusion**

The current study demonstrates how there is a considerable relationship between the imposter phenomenon and levels of anxiety. The results of the present study also show that there is a need to conduct further research in this area that considers the prevalence of the imposter phenomenon and anxiety within Irish college students. The results of the current study are concurrent with past research in regard to the gender biases that are prevalent within both the imposter phenomenon and anxiety, specifically in Irish students. The results

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also support the assumption made within previous literature that there is a positive relationship between high levels of the imposter phenomenon and high levels of anxiety.

These results emphasise the importance of education on both the imposter phenomenon and anxiety in tandem with each other within Irish colleges. Lastly, the current study also found that male participants experienced a greater correlation between high levels of anxiety and high levels of the imposter phenomenon. This correlation highlights a possible gap in the literature as generally females are more likely than males to experience both anxiety and the imposter phenomenon, respectively. This is an important issue that should be studied more in depth as to how males with high levels of anxiety are more likely than females to have high levels of the imposter phenomenon and how this may affect the personal experiences of males with either anxiety or the imposter phenomenon.



## THE IMPOSTER PHENOMENON AND ANXIETY

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## Appendices

## Appendix A

## The Clance Imposter Phenomenon Scale

## 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)

Note: From *The Imposter 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, [prclance@comcast.net](mailto:prclance@comcast.net), [www.paulineroseclance.com](http://www.paulineroseclance.com).

## THE IMPOSTER PHENOMENON AND ANXIETY

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

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

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

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

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

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

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

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

Note: From *The Imposter 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, [prclance@comcast.net](mailto:prclance@comcast.net), [www.paulineroseclance.com](http://www.paulineroseclance.com).

## THE IMPOSTER PHENOMENON AND ANXIETY

## Appendix B

## The Beck Anxiety Inventory

**Beck Anxiety Inventory (BAI)**

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

	Not at all	Mildly, but it didn't bother me much	Moderately – it wasn't pleasant at times	Severely – it bothered me a lot
Numbness or tingling	0	1	2	3
Feeling hot	0	1	2	3
Wobbliness in legs	0	1	2	3
Unable to relax	0	1	2	3
Fear of worst happening	0	1	2	3
Dizzy or lightheaded	0	1	2	3
Heart pounding / racing	0	1	2	3
Unsteady	0	1	2	3
Terrified or afraid	0	1	2	3
Nervous	0	1	2	3
Feeling of choking	0	1	2	3
Hands trembling	0	1	2	3
Shaky / unsteady	0	1	2	3
Fear of losing control	0	1	2	3
Difficulty in breathing	0	1	2	3
Fear of dying	0	1	2	3
Scared	0	1	2	3
Indigestion	0	1	2	3
Faint / lightheaded	0	1	2	3
Face flushed	0	1	2	3
Hot / cold sweats	0	1	2	3



## THE IMPOSTER PHENOMENON AND ANXIETY

### Appendix C

#### Participant Information Leaflet

#### The Imposter Phenomenon and Its Relationship With Anxiety In Students

You are being invited to take part in a research study on the effects of the imposter syndrome and its relation to anxiety. Before deciding whether to take part, please take the time to read this document, which explains why the research is being done and what it involves. Please do not hesitate to contact me at my email address (shown below), if you have any questions about the information.

#### What is this study about?

I am a final year student in the BA in Psychology programme at National College of Ireland. As part of our degree we must carry out an independent research project. The aim of my research project is to identify the relationship between the imposter phenomenon and anxiety in a student population, the current study will also investigate the gender bias included in the imposter phenomenon. The imposter phenomenon is the inability to perceive personal successes as valid despite ability and praise from others, the phenomenon causes people to feel like they are “frauds” and that they will be “found out”.

#### What will taking part in the study involve?

If you decide to take part in this research, you will be asked to complete an online questionnaire with 46 questions on anxiety, the imposter phenomenon and a few questions on your demographics. The survey will only take around 5 minutes to complete.

#### Who can take part?

## THE IMPOSTER PHENOMENON AND ANXIETY

You can take part in this study if you are aged over 18 and are enrolled in a undergraduate or post graduate college course

### **Do I have to take part?**

This survey is completely voluntary and you are perfectly within your rights to refuse to complete it, and you can withdraw at any time from start to finish. Once you have submitted your survey, it will not be possible to withdraw your data from the study, however this is because the questionnaire is completely anonymous and each individual responses cannot be identified.

### **What are the possible risks and benefits of taking part?**

There are no direct benefits to you for taking part in this research. However, the information gathered will contribute to research into how the student population is affected by the imposter phenomenon and how the phenomenon relates to anxiety.

There is a small risk that some of the questions contained within this survey may cause minor distress for some participants with the discussion of anxiety and the imposter phenomenon., you are free to exit the survey at any point in between start to finish. Contact information for relevant support services are also stated at the start and end of the survey.

### **Will taking part be confidential and what will happen to my data?**

The survey is completely anonymous, it is not possible to identify a participant based on their responses to the questionnaire. Each response collected for the study will be treated in the strictest confidence. Responses to the questionnaire will be stored securely in a password protected/encrypted file on my computer. Only me and my supervisor will have access to the data. The data will be retained for 5 years in accordance with the NCI data retention policy.

## THE IMPOSTER PHENOMENON AND ANXIETY

### **What will happen to the results of the study?**

The results of the study will only be submitted to my final, which will be submitted to National College of Ireland.

### **Who should you contact for further information?**

You can contact me by email at [X18433452@student.ncirl.ie](mailto:X18433452@student.ncirl.ie) or my supervisor at their email \_\_\_\_\_ if further information is needed.

### **Consent**

**I have read and understood the Information Leaflet for the current study.**

Yes  No

**I understand that I am free to withdraw from the study at any time before submitting my survey without giving a reason.**

Yes  No

**I agree to take part in the study.**

Yes  No

### **Appendix D**

#### **Demographic Questions**

Please answer the following demographic questions before beginning the questionnaire.

**Age:**

**Gender:**

## THE IMPOSTER PHENOMENON AND ANXIETY

Are you currently enrolled in an undergraduate/ postgraduate degree:

Yes  No

Please indicate if you were born in Ireland:

Yes  No

## Appendix E

### Proof of data and SPSS output

	Name	Type	Width	Decimals	Label	Values	Missing	Columns
1	Age	Numeric	3	0		None	None	12
2	Gender	Numeric	2	0		{1, Male}...	None	12
3	RaceEthnicity	Numeric	2	0	Race/Ethnicity	{1, White}...	None	12
4	IP_Q1	Numeric	2	0		{1, Not At A...	None	12
5	IP_Q2	Numeric	2	0		{1, Not At A...	None	12
6	IP_Q3	Numeric	2	0		{1, Not At A...	None	12
7	IP_Q4	Numeric	2	0		{1, Not At A...	None	12
8	IP_Q5	Numeric	2	0		{1, Not At A...	None	12
9	IP_Q6	Numeric	2	0		{1, Not At A...	None	12
10	IP_Q7	Numeric	2	0		{1, Not At A...	None	12
11	IP_Q8	Numeric	2	0		{1, Not At A...	None	12
12	IP_Q9	Numeric	2	0		{1, Not At A...	None	12
13	IP_Q10	Numeric	2	0		{1, Not At A...	None	12

Data View **Variable View**

Start IBM SPSS Statistics Processor is ready Unicode:ON

## THE IMPOSTER PHENOMENON AND ANXIETY

\*imposter phenomenon.spv [Document1] - IBM SPSS Statistics Viewer

File Edit View Data Transform Insert Format Analyze Graphs Utilities Extensions Window Help

Scale Stati

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Notes

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Scale: anxiety

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Dataset Name

Title

Notes

Warnings

### Statistics

Gender

N	Valid	80
	Missing	0

### Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	24	30.0	30.0	30.0
	Female	55	68.8	68.8	98.8
	Non-Binary	1	1.3	1.3	100.0
Total		80	100.0	100.0	

EXAMINE VARIABLES=Anx Score IP Score

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